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Rwanda National Health Accounts 1998

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Partnerships for Health Reform
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The Partnerships for Health Reform (PHR) Project seeks to improve people's health in low- and middle-income countries by supporting health sector reforms that ensure equitable access to efficient, sustainable, quality health care services. In partnership with local stakeholders, PHR promotes an integrated approach to health reform and builds capacity in the following key areas:

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- *improved incentives within health systems to encourage agents to use and deliver efficient and quality health services; and*
- *enhanced organization and management of health care systems and institutions to support specific health sector reforms.*

PHR advances knowledge and methodologies to develop, implement, and monitor health reforms and their impact, and promotes the exchange of information on critical health reform issues.

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Abstract

National Health Accounts (NHA) are designed to give a comprehensive description of resource flows in a health system, showing where resources come from and how they are used. The Rwandan Ministry of Health (MOH) has recognized the importance of documenting the overall flow of health funds—and in particular funds related to HIV/AIDS—and has initiated the NHA activity with a view to generate data that can assist formulation of health policies that improve access to care and efficiency of resource allocation. With this first NHA report, the MOH aims to document the magnitude of sources, flow and uses of funds within the public and private health care sector in Rwanda during 1998. NHA findings reveal total per capita health expenditures in the amount of US$ 12 per year, of which 50 percent is funded by the international community, 40 percent by households, and 10 percent by the government. This report also includes information on HIV/AIDS expenditures in Rwanda and establishes a baseline to determine the sources, flow, and use of HIV/AIDS monies. In terms of overall health spending, the MOH aims to document the level of health expenditures related to HIV/AIDS, the flow of AIDS monies from sources to users, and how HIV/AIDS expenditures relate to overall health sources and funds. With a growing number of sero-positive patients demanding access to care, the demand for resources is growing and this in turn is causing increasing challenges to the Rwandan health system. The comparison of HIV/AIDS-related costs (prevention, treatment, and mitigation) within overall health expenditures reveals that AIDS prevention is to a large extent financed by donor funds, whereas treatment costs place the heaviest financial burden on households. This is because there is an absence of a financial support system that facilitates patients' access to care. Thus, access to treatment of HIV/AIDS-related diseases is defined by the patient's socioeconomic background and ability to pay user fees. Based on this analysis, the NHA report suggests health policies for the overall Rwandan health sector and for the HIV/AIDS sector, to improve the financial information process, the sustainability and affordability of health care, as well as the equity of access to health care.

Table of Contents

List of Tables

List of Figures

Acronyms

ALOS	Average Length of Stay
CAMERWA	*Centrale d'Achat des Médicaments Essentiels au Rwanda* (Center for Purchase of Essential Drugs for Rwanda)
CHK	Central Hospital of Kigali
CPI	Consumer Price Index
CSR	*Caisse Sociale du Rwanda* (Social Insurance of Rwanda)
CRIS	*Centre Rwandais d'Information sur le SIDA* (Information Center on AIDS)
DHS	Demographic Health Survey
DS	*District Sanitaire* (Health District)
FA	Financing Agent
FFS	Fee-for-service
GDP	Gross Domestic Product
GOR	Government of Rwanda
HUB	*Hôpital Universitaire Butare* (University Hospital Butare)
KFH	King Faycal Hospital
MINAFASO	Ministry of Gender, Family and Social Affiars
MOD	Ministry of Defense
MOE	Ministry of Education
MOF	Ministry of Finance and Economic Planning
MOH	Ministry of Health
MOJ	Ministry of Justice
MTEF	Medium Term Expenditure Framework
NHA	National Health Accounts
NGO	Non-governmental Organizations
NPA	Norwegian People's Aid
ONAPO	*Office National de la Population* (National Population Office)
PER	Health Sector Public Expenditure Review
PHR	Partnerships for Health Reform
PLWA	People Living with AIDS
PNLS	*Programme National de Lutte contre le SIDA* (National AIDS Program)
PNLP	*Programme National de Lutte contre le Paludisme* (National Malaria Program)

PNILT	*Programme National Intégré de Lutte contre la Lèpre et la Tuberculose* (National Tuberculosis Propram)
SIS	*Système d'Information Sanitaire* (Health Information System)
UNAIDS	United Nations AIDS Program
UNR	*Université National du Rwanda* (Rwanda National University)
USAID	United States Agency for International Development
WHO	World Health Organization

EXCHANGE RATE US$ 1 = FRw 317 (1998)

Acknowledgments

The development and implementation of this first National Health Account (NHA) report involves several institutions. The figures and estimates presented in this report are based primarily on data collected by the staff and officials of the Ministry of Health (MOH), the Ministry of Economics and Finances, and the Audit and Consulting Firm AG & Associates Kigali. A large number of public, church-owned, and private sector organizations and representatives of different international organizations working in Rwanda shared their financial data. The following NHA steering committee team members constantly supported the entire NHA exercise:

- Major Dr. Desire Ndushabandi as the Secretary General of the Ministry of Health and President of the NHA steering committee
- Mr. Emanuel Kabanda as Director of Planning at the MOH and his staff
- Mr. Patrick Gashagaza, Associate, AG & Associates Kigali
- Other members of the steering committee for National Health Accounts

To be acknowledged are all contributions received from participants during workshops and meetings on NHA in Rwanda, as well as from staff and sero-positive patients from the Central Hospital of Kigali, the Information Center on AIDS, the Bilyogo health center in Kigali, and the AIDS Association in Butare.

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Executive Summary

Socio-economic Background

With an estimated nominal gross domestic product (GDP) per capita of US$253 in 1998, which is even lower than the 1990 GDP per capita figure (US$270), Rwanda is one of the poorest countries in the world. Even though real GDP growth rate in 1998 was 9.6 percent, the average annual growth projections are estimated to be only 6.8 percent for the next four years (World Bank, 1999). Rwanda has a population of approximately 7.9 million with an annual growth rate of 2.8 percent, the same level as reported for Sub-Saharan Africa. Approximately 90 percent of Rwandans are active in agriculture, the most labor intensive and least productive sector, producing about one-third (36 percent) of the country's GDP. Industry and manufacturing constitute approximately 22 percent of GDP and employ 2 percent of the population, whereas 7 percent of the labor force works in the service sector producing 42 percent of GDP (Republic of Rwanda, 1999d). Agricultural products, mainly coffee and tea, account for 80 percent of the country's exports. In spite of this, most agricultural activity remains at the subsistence level, with produce consumed primarily by households and the community.

Since the destruction caused by the war in 1994, Rwanda's economy has been recuperating, due mainly to external resource inflow, and less to the recovery of domestic production. Rwanda's social indicators remain poor despite the progress achieved since the war and the recent favorable GDP growth experience. Between 1993 and 1997, the proportion of households below the poverty line rose from 53 to 70 percent. The decline in living standards coupled with rapid population growth will increase the demand for social services such as health and education and increasingly strain the limited resources of the government. This reinforces the need to develop and implement policies that will increase access to basic health services to the poor and vulnerable populations.

Health Sector

The lack of availability of reliable data on health care utilization, insurance coverage and expenditures on health care services in the public and private sector remains a major issue. The health information system (*Système d'Information Sanitaire,* SIS) implemented is still in its rudimentary stages.

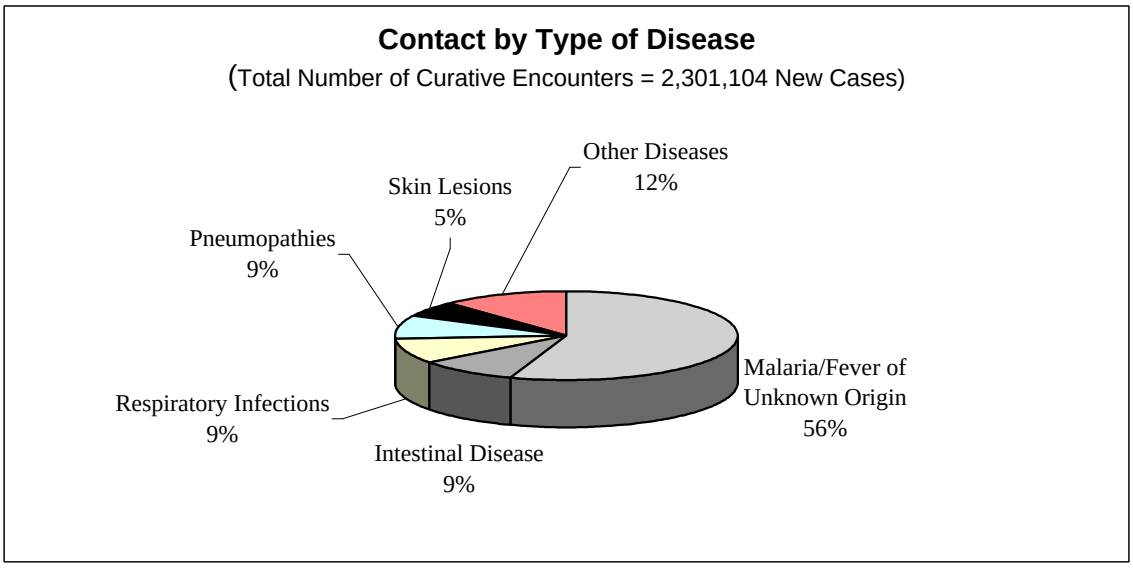
The genocide in 1994 severely damaged the health infrastructure of the country. Recovery has been largely funded and supported by international organizations providing humanitarian and development assistance for both infrastructure and reconstruction of the health sector. Since 1994, the Rwandan government's contribution to health has remained at a low level of 2 to 3 percent of recurrent government expenditures. This is below pre-war levels of 4 to 8 percent (Republic of Rwanda, 1999c). Donor assistance and household out-of-pocket expenditures finance most health care expenditure.

After 1996, providers in public and church facilities reintroduced at a pre-war level fees for health services and drugs that had been suspended during the civil war. In 1998, only two insurance

companies covered health care. Employers either contract directly with providers or offer care in own health facilities. The Rwandan government remains the major provider of health services with religious organizations as partners, especially in rural areas. The role of for-profit private providers is still limited but has been growing, mostly in urban areas. Although the Rwandan Ministry of Health (MOH) in collaboration with international organizations created an extensive network of health facilities, shortage of public funds and weak management have caused drug and service prices to increase and patient utilization to drop. In 1998, consultations at health center averaged a mere 0.28 visits per capita (SIS). Rural populations are probably seeking care either in the traditional sector or at pharmacies and some may even be foregoing needed care because of their inability to pay.

Figure ES-1 indicates that communicable diseases dominate Rwanda's burden of sickness. The 1998 MOH Annual Report (Republic of Rwanda, 1999b) reveals that, of the 2.3 million patient contacts for curative care services, 88 percent were for malaria, fever, intestinal diseases, respiratory infections, pneumonia, and skin lesions. A population-based nutrition survey revealed that almost half (43 percent) of Rwandan boys and girls under five years suffer from nutritional stunting (Republic of Rwanda, 1999d). Lower-income families bear a greater proportion of the burden of disease.

Figure ES-1: Burden of Disease in Rwanda's Health Centers 1998



Source: SIS Rwanda

The combined effect of the socio-economic situation, low consultation rates, and the high prevalence of malaria, diarrhea, and respiratory infections have contributed to high rates of childhood malnutrition and mortality. Rwandans are most likely to die from poverty-related preventable diseases and infections such as malaria, fever, diarrhea, respiratory infections, and AIDS.

HIV has emerged as a major public health issue in Rwanda. In 1997, the MOH National AIDS Program (*Programme National de Lutte contre le SIDA* PNLS) conducted a population-based sero-survey and identified approximately 11 percent of the adult population to be HIV positive. HIV prevalence in rural areas has increased from 1.3 percent in 1986 to 10.8 percent in 1997. Highest prevalence rates (20 percent) were found among women age 25-34, followed by those working in the

service sector (16 percent – 19 percent),(Republic of Rwanda. 1998a) thus affecting the most economically productive population group.

Profile of Health Sub-systems

The Rwandan health sector has a three-tier administrative structure: the first is the central-level MOH with four directorates, the second consists of 11 health regions, and the third is made up of 38 health districts. Care is provided at two public referral hospitals, 28 operational district hospitals, and at 283 health centers, 40 dispensaries, and nine health posts. Health centers serve an average population of 23,030 individuals, and a district hospital covers 217,428 inhabitants. There are four tertiary care hospitals in Rwanda of which one—King Faycal Hospital (KFH)in Kigali—was privatized in early 1998. The two public tertiary hospitals are the Central Hospital of Kigali (CHK) and the University Hospital in Butare (*Hôpital Universitaire Butare* HUB). The tertiary-level psychiatric hospital in Ndera is church-owned. In 1998, the government paid special overseas treatment costs for 98 individuals.

The Table ES-1 provides an overview of the Rwandan health sector in terms of health services coverage, sources of financing, provider-payer relationships, and the size of operation of each of the health care systems.

Table ES-1. Profile of Rwanda's Health Systems

Benefits by Health Sub-systems	Access/Coverage/ Special Population Categories	Principal Financing Sources	Provider-Payer Relationship	Size of Operation
MOH and Church-owned Health Services				
Owns and provides comprehensive public health services, primary, preventive and curative care through its facilities. Owns and operates pharmacies.	Available to everybody who is able to pay out-of-pocket user fees. Exempted: Civil servants and dependents; and individuals identified as poor by local authorities.	Ministry of Finance and Economic Planning (MOF) Donor assistance Out-of-pocket payments by patients To a lesser extent: Payments from insurance plans Payments from formal employer sector	MOH facilities are financed through budget allocation of the MOF and have salaried civil service staff. Church-owned facilities receive a budget contribution from the MOH. Donors provide funds through programs and projects. Patients pay out-of-pocket user fees per service and drugs. CSR Social Insurance plan reimburses providers by fee-for-service payments.	3 referral hospitals (CHK, UNR, Ndera) 28 district hospitals of which 10 are owned by the church and 18 are public. 330 health centers of which 138 are church-owned. 1 central drug importer serving public sector (CAMERWA) 32 public pharmacies
Private Health Sector				
Owns and operates private clinics and hospitals for primary and curative care. Owns and operates pharmacies.	Available to everybody who is able to pay out-of-pocket user fees.	Direct out-of-pocket payments by patients Payments from formal employer sector. To a lesser extent: Payments from insurance plans.	Patients pay fees per service and drugs. Capitation agreement between private insurance SUREMED and private hospital. CSR Social Insurance plan reimburses providers by fee-for-service payments.	1 referral hospital (KFH) 166 paramedical dispensaries 55 clinics 3 laboratories 300 retail pharmacies 17 wholesale pharmacies (including 5 importers) Traditional healers

Notes: CSR = Social Insurance of Rwanda *(Caisse Sociale du Rwanda)*
UNR = Rwanda National University *(Université National du Rwanda)*
CAMERWA = Center for Purchase of Essential Drugs for Rwanda *(Centrale d'Achat des Médicaments Essentiels au Rwanda)*

National Health Accounts Activity

National Health Accounts (NHA) are designed to give a comprehensive description of resource flows in a health care system, showing where resources come from and how they are used in the health sector. NHA can be used to:

- Compile descriptive statistics of the health sector
- Describe the flow of funds throughout the system
- Assist policymakers in setting health care policy priorities
- Assess the performance of health systems
- Identify areas in the Rwandan health sector, where equity in the distribution of care can be improved

The NHA activity is a first attempt in Rwanda to describe in a comprehensive manner the flow of funds within its health care sector, including private, public, and international funding. This has been an iterative process, which was refined as more data became available and the methodology evolved. Several training programs were conducted to build local staff capacity to ensure sustainability of this activity in the long run. Primary data collection instruments were developed to complement secondary data sources. Data validation checks were instituted to ensure validity and reliability of data. Finally, and most importantly, a specific HIV/AIDS study was undertaken using the NHA methodology and framework to better comprehend the scope of the AIDS epidemic and overall expenditures associated with it. AIDS-specific NHA results are summarized later. The main findings for Rwanda's NHA 1998 are summarized in Table ES 2:

Table ES-2: Summary Statistics NHA 1998

Total Population	7,883,000
Exchange Rate	US$ 1 = FRw 317
Total GDP (nominal) estimated for 1998	FRw 631,680,000,000 (US$ 1,992,681,388)
Total Government of Rwanda Expenditure and Net Lending	FRw 117,431,000,000 (US$ 370,444,795)
Total Health Expenditures (NHA 1998)	FRw 31,678,228,702 (US$ 99,931,321)
Per Capita Total Health Expenditure	FRw 4,019 (US$ 12.68)
Public	FRw 396 (US$ 1.25)
Private	FRw 1,592 (US$ 5.02)
International Sources	FRw 2,030 (US$ 6.40)
Total Health Expenditures as Percent of Nominal GDP	5.0 %
Public	0.5 %
Private	2.0 %
International	2.5 %
Percent GOR total expenditure spent on health care	2.5 %
Sources of Funds Distribution:	
Public	9.2 %
Public Firms	0.7 %

Private	39.6 %
International	50.5 %
Uses of Funds:	
Public Facilities	66%
Church Facilities	10%
Private Facilities	24%

Analysis of Sources and Uses of Funds

The NHA 1998 results (Figure ES-2, Tables ES-3, and ES-4) show that the Rwandan health sector is largely financed by foreign assistance. Without the foreign aid, the total health spending as a percent of GDP in Rwanda would fall below the levels of other Sub-Saharan countries. The key contributors to the health sector are international donors (50 percent) and households (33 percent). The GOR contribution to the health sector in terms of overall government spending is at a low 2.5 percent. The Ministry of Finance contributes only 9 percent of the total funds. Despite the high level of foreign support the Rwandan population reports poor access to health care and poorer health status than people living in neighboring countries.

Figure ES-2: Sources of Funds

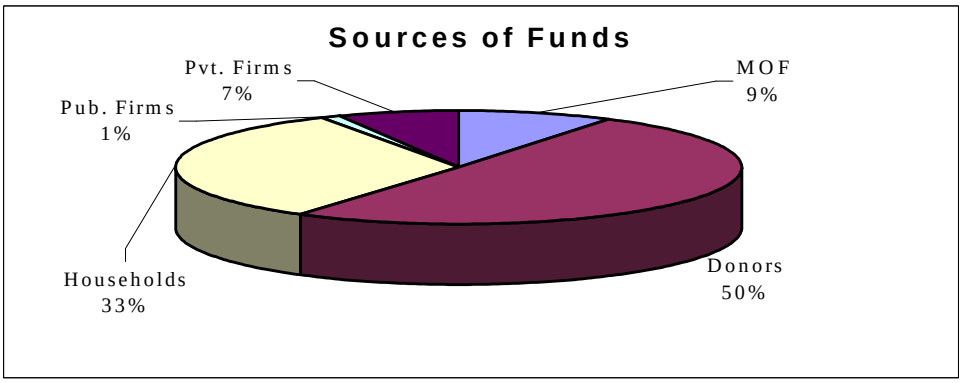


Table ES-3: Sources to Financing Agents (in 000s FRw, 1998)

	Sources						
Financing Agents	**MOF**	**Donors**	**Households**	**Public Firms**	**Private Firms**	**Total**	**Percent**
Ministry of Health:							
Central Level	2,197,559	3,770,331	-	-	-	5,967,891	19%
Health Regions	-	2,645,350	-	-	-	2,645,350	8%
Health Districts	-	2,417,081	-	-	-	2,417,081	8%
Other Ministries:							
Ministry of Education	304,346	-	-	-	-	304,346	1%
Ministry of Justice	30,000	-	-	-	-	30,000	0%
Ministry of Defense	300,196	-	-	-	-	300,196	1%
Public Sector:							
Public Firms	31,435	-	-	137,339	-	168,774	1%
CSR Social Insurance	45,564	-	499	24,462	30,523	101,048	0%
Private Sector:							
Churches / Local NGOs		305,851	-	-	-	305,851	1%
Private Insurance		-	6,864	15,776	23,899	46,538	0%
Households out-of-pocket		-	10,302,896	37,320	113	10,340,329	33%
Private Firms		-	-	-	2,187,734	2,187,734	7%
International Donors		6,863,091	-	-	-	6,863,091	22%
Total FR	**2,909,100**	**16,001,705**	**10,310,259**	**214,896**	**2,242,269**	**31,678,229**	**100%**
Percent Distribution	9.3%	50.4%	32.4%	0.8%	7.1%	100.0%	
Total US$	**9,177**	**50,479**	**32,524**	**678**	**7,073**	**99,931**	

Notes on private firms:

FRw	35,860,000	adjusted contract spending with private provider clinic
	22,713,978	spending to private firm owned facility health care
	2,111,492,356	stockholder payments to private hospital
	17,667,246	other direct provider payments

FRw 2,187,733,580 total private firm spending (source) to private firms (FA)

Table ES-4: NHA Matrix Financing Agents to End Users (FRw) 1998, in '000 FRw

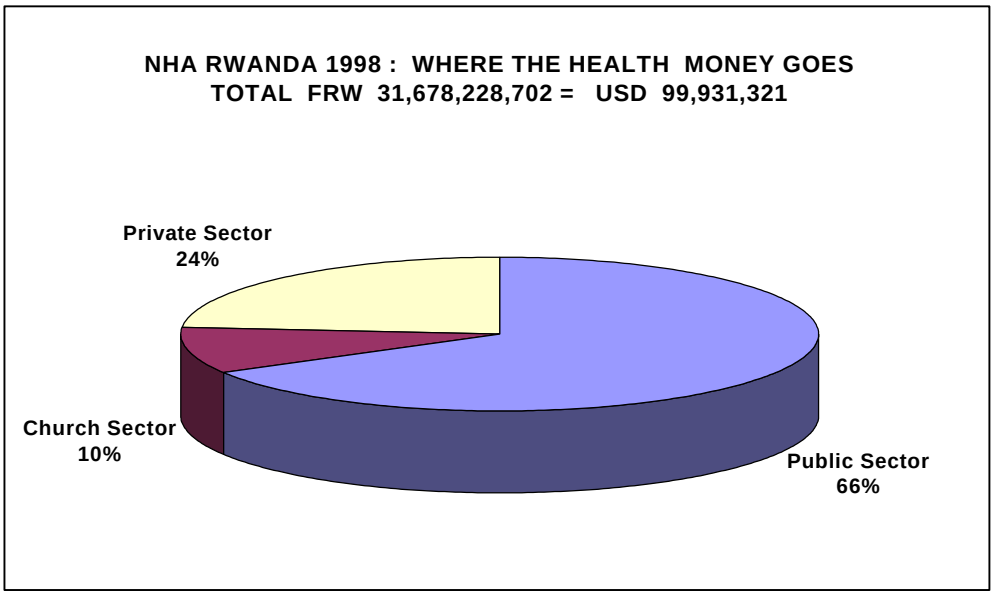
	Financing Agents:														
Uses:	**MoH**	**Health Reg**	**Health Dist**	**MOE**	**MOJ**	**MOD**	**Public Firms**	**CSR**	**NGO / Churches**	**Private Insur**	**Out-of-Pocket HH**	**Private Firms**	**Donor**	**Total**	**Percent**
Public Sector:															
MOH Cent Level	2,025,849													2,025,849	6.4%
H Program	2,414,407													2,414,407	7.6%
H Regions	188,687	2,476,695		871	13,199									2,679,452	8.5%
H Districts	182,269	22,610	1,693,348		7,759									1,905,986	6.0%
Tertiary Hosp	225,018			303,475				51,221			309,005			888,719	2.8%
Tert Hosp Admin	162,179												699,351	861,529	2.7%
District Hosp	176,904		18,651								290,217	2,186	2,408,074	2,896,032	9.1%
Pub H Centers											682,556		1,084,164	1,766,720	5.6%
Pub Pharmac	167,129	9,351	580,940					30,863	87,666		4,167,635		284,945	5,328,530	16.8%
MOD Hospital						300,196								300,196	0.9%
NGO Sector:															
Church Hosp	53,103		4,337					6,695			197,107	1,731	1,171,600	1,434,572	4.5%
Church HC											682,556		944,348	1,626,904	5.1%
Private Sector:															
Treatment Abroad	346,645						25,746	12,269						384,660	1.2%
Hospital	25,000									20,000	409,830	2,125,242	182,493	2,762,565	8.7%
Clinics							25,020			26,538	225,934	35,860	45,623	358,976	1.1%
Emp Facil							118,008					22,714		140,722	0.4%
Priv Phar	702	136,694	119,805						174,354		2,010,376		42,494	2,484,424	7.8%

Trad Healers											1,365,113			1,365,113	4.3%
Unacc. funds					9,042				43,831					52,873	0.2%
TOTAL FR	5,967,891	2,645,350	2,417,081	304,346	30,000	300,196	168,774	101,048	305,851	46,538	10,340,329	2,187,734	6,863,091	31,678,229	100.0 %
DISTRIB	18.8%	8.4%	7.6%	1.0%	0.1%	0.9%	0.5%	0.3%	1.0%	0.1%	32.6%	6.9%	21.7%	100.0%	
Total US$	18,826	8,345	7,625	960	95	947	532	319	965	147	32,619	6,901	21,650	99,931	

Notes: MOE= Ministry of Education, MOJ=Ministry of Justice, MOD=Ministry of Defense, NGO=non-governmental organization, HH=household

As Figure ES-3 indicates, 66 percent of the health spending financed care in the public sector, 24 percent in the private sector, and 10 percent in church facilities. While the public sector benefits from two-thirds of the total health care resource allocations, it contributes only 10 percent of total health sources. This reinforces the importance of foreign assistance in the public sector. Patients who are able to pay higher out-of-pocket user fees have access to private facilities.

Figure ES-3: Use of Health Funds at Sectors



To summarize, the NHA 1998 results show that Rwandan health sector is largely financed by foreign assistance and that there are data gaps that do not facilitate tracking the resources that flow through the system. Without foreign aid the total health spending as a percent of GDP in Rwanda would fall below the level of other Sub-Saharan countries. Despite the high level of foreign assistance the Rwandan population reports poor access to health care and health status than the population in the neighboring countries. This highlights potential inequities and inefficiencies in the health system. The private sector accounts for 24 percent of health spending, however, it tends to favor the small proportion of the population that is able to pay the higher user fees. Public health centers serve about 90 percent of the population but benefit from only 12 percent of all health resources. One-third of the health money is spent on care in public and private hospitals.

Households

Due to the lack of household expenditure data in 1998, amounts declared as household revenue by insurance companies and service providers were used to approximate household spending for health care for NHA purposes. These estimates will be updated when the household survey and Demographic and Health Survey for the year 2000 are completed. In the absence of more reliable data, preliminary findings from prepayment schemes were used to estimate that expenditure on traditional treatment was equivalent to expenditures incurred at health centers.

Table ES-5 shows households spend almost 93 percent of their health money in the form of out-of-pocket payments directly to the providers at public and private health facilities; they spend the remaining 7 percent at pharmacies. The 93 percent that goes to providers can be broken down as follows: 18 percent is spent at district and referral hospitals, 31 percent *each* at health centers and traditional healers, and 14 percent at private clinics and hospitals. Overall about half of household spending goes to private sector providers, 29 percent to public, and 20 to percent church-owned hospitals and health centers. This high proportion of health care expenditure borne by households raises significant equity concerns. The burden of out-of-pocket expenditure on low-income households is likely to be overwhelming.

Table ES-5: Revenue Received from Private Households in 1998 in FRw

	Household Spending FRw		
Household payments to:	**Per Category**	**Total**	**Percent**
CSR premium revenue	499,231		0.0%
Private insurance premium revenue	6,863,753		0.2%
Total insurance premium paid by households		7,362,984	0.2%
CHK referral hospital patient revenue	209,005,243		4.7%
HUB referral hospital estimated patient revenue	100,000,000		2.2%
Public district hospitals patient revenue	290,216,853		6.5%
Church-owned district hospitals patient revenue	197,106,933		4.4%
Adjusted patient revenue from drug sale in health centers	620,541,708		13.9%
Adjusted patient revenue from treatment in health centers	744,570,850		16.7%
Private referral hospital patient revenue	396,430,400		8.9%
Adjusted private clinics patient revenue	217,219,101		4.9%
Estimated patient revenue at traditional healers	1,365,112,558		30.6%
Total health care facilities revenue from households		4,140,203,646	92.8%
Private pharmacies drug sales to private households	292,600,197		6.6%
Public pharmacies drug sales to private households	19,913,122		0.4%
Total pharmacies revenue from households		312,513,319	7.0%
Total household revenue		4,460,079,949	100.0%

Source: NHA questionnaires; information for health centers are from SIS 1998

Results of Prepayment Schemes in 1999/2000

During 1999, the MOH developed and implemented prepayment schemes in three health districts. After the first year, 8 percent of the district population, mainly those active in the agriculture sector, were members of prepayment schemes. Per capita contribution to health centers were five times higher for members of prepayment schemes (FRw 580) than for non-members (FRw 104) in the district of Byumba. Considering that the majority of outpatient services are provided in health centers, prepayment schemes have proved to be an important instrument to improve patients' access to care and increase health centers productivity and financial resources. With a perspective of making the financing system sustainable in the long run and the likelihood of a decline in donor assistance, the GOR might want to consider a nationwide extension of prepayment schemes and at the same time increase public financial support to health facilities.

Pharmaceutical Sector

In 1998, the total expenditure on drugs amounted to FRw 7.8 billion, accounting for one-fourth of the total health care expenditure in Rwanda. This level of expenditure is comparable to most other developing countries. Severe lack of data impedes any attempt to describe the demand and costs of drugs in the Rwandan health sector. The MOH is in the process of implementing a drug information system, which will provide the necessary data in the future.

Most of the pharmaceuticals are imported into Rwanda. There is one not-for-profit organization, CAMERWA (*Centrale d'Achat des Médicaments Essentiels au Rwanda,* Center for Purchase of Essential Drugs for Rwanda), that is licensed to import drugs for the public sector. It supplies to the public pharmacies, usually at the district level, and hospitals.

Data from the Rwandan Customs (Table ES-6) reveal that the public sector is responsible for distribution of a little over two-thirds (in terms of value), of drugs. The private sector is responsible for the remaining 32 percent. The private sector's sales volume is caused by higher priced drugs compared to public pharmacies, which mainly sell low priced generic drugs. Public pharmacies mainly serve public sector providers (accounting for 92 percent of its total sales revenue), followed by international organizations (5 percent) and church-owned facilities (2 percent). Private pharmacies mainly sell to the private sector facilities (83 percent of private pharmacies total sales), followed by sales to public sector facilities (10 percent) and church-owned facilities (7 percent).

Table ES-6: A Comparison of Expenditures on Pharmaceuticals in 1998

Total Drug Expenditures	Rwanda Customs 1998
- in FRw - in US dollars	FRw 7,830,741,050 (US$ 24,702,653)
Percent of Total Health Expenditures	25 %
Percent of GDP	1.24 %
Sector Distribution of Import Value	Public sector : 68 % Private sector : 32 %

Sources: NHA 1998 and information on drug imports received from Rwanda Customs

Health Insurance

The flow of fund matrix (Table ES-3) shows that both private insurance companies and the CSR Social Insurance constitute a rather small part of overall financing in Rwanda. The annual budget of CSR in 1998 amounted to FRw 101 million and comprised 69 percent of the insurance market. Revenue of private insurance companies amounted to FRw 46 million. Table ES-7 reveals the sources of funds for the public and private insurance entities. The MOF appears to be the major contributor for the CSR Social Insurance programs whereas, as expected, private firms contribute the most to private insurance companies.

Table ES-7: Sources of Funds for Insurance Entities (percent)

Source of Funds	CSR Social Insurance	Private Insurance Companies
MOF	46 %	-
Households	< 1	15
Public Firms	24	34
Private Firms	30	51
Total Budgets	FRw 101,048,000	FRw 46,538,000

Source: NHA 1998. Government, Public and Private Firms, Insurance companies

Table ES-8 shows that 70 percent of the total CSR Social Insurance funds are spent on curative care at various hospitals, including treatment abroad. Approximately 30 percent is spent on drugs. The administrative expenditure of the entire CSR program is allocated to curative care rendered at different type of hospitals and pharmacies based on their respective costs. From the limited available data in the private insurance sector, this study estimated that 43 percent of care is for inpatient care and the rest for outpatient care at private clinics.

Table ES-8: Uses of Funds for Insurance Entities (percent)

Uses	CSR Social Insurance	Private Insurance Companies
MOH Pharmacies	30%	
Tertiary Hospitals	51%	
Church Hospitals	7%	
Treatment Abroad	12%	
Private Hospital		43%
Private Clinics		57%
Total	FRw 101,048,000	FRw 46,538,000

Source: NHA 1998; government, public and private firms, insurance companies

Note: Numbers may not add up to 100% due to rounding

Table ES-9 shows that in 1998 insurance companies signed 1,602 contracts, covering 48,255 insured individuals and their dependents in Rwanda, or 0.6 percent of the total Rwandan population of 7.8 million. However, the target group for these two health insurance companies is the 10 percent of the population that is economically productive in the manufacturing and service sector. Summing the total number of people employed in the public and private sectors, approximately 6 percent of the target group benefits from health insurance. More than half of this population group received coverage through the employer market (59 percent) whereas 39 percent were covered through a government contract. Only 1 percent of the population with health insurance has individual contracts with a private insurance company.

Table ES-9: Health Insurance Markets and Beneficiaries in 1998

		Number of People Beneficiaries			
Health Insurance Market	**Contracts**	**Insured**	**Dependents**	**Total Persons**	**Percent**
Employer Market	1,350	26,562	1,169	27,731	59%
Private Market	541	143	684	1%	39%
Government Market	252	18,528	N/a	18,528	39%
Total Coverage	**1,602**	**46,943**	**1,312**	**48,255**	**100%**
Approx. Size of Population Target Group				**788,300**	
Coverage in % of Target Group				**6.1%**	

Source: NHA 1998; government, public and private firms, insurance companies

Hospital Sector

The overview of Rwanda's health system in Table ES-2 shows that four referral and 29 district hospitals constituted the hospital sector in 1998. Following is a description of the hospitals' financial situation, capacity, and utilization.

Sources of Revenue in Referral and District Hospitals

Table ES-10 depicts revenue sources as reported by one public and one private referral hospital. The CHK also has district hospital functions. Referral hospitals reported considerably more funds in absolute terms from the government and from foreign assistance compared to district hospitals (see Table ES-11). On a per hospitalized patient level, the CHK received FRw 10,222 from government contributions, FRw 8,545 from patients' out-of-pocket payments, and FRw 21,959 per patient from international donors. The number of patients hospitalized at the private hospital could not be estimated.

Table ES-10: Sources of Revenue for Referral Hospitals in 1998 (in FRw per hospital)

Referral Hospitals	Public Funds	Private Revenue (patient and other)	Foreign Assistance	Total Revenue
1 Private Referral Hospital	25,000,000	410,180,480	2,111,492,356	2,546,672,836
Distribution of Sources Private	**1%**	**16%**	**83%**	**100%**
1 Public Referral Hospital CHK	250,018,024	209,005,243	537,103,238	996,126,505
Distribution of Sources Public	**25%**	**21%**	**54%**	**100%**
Number of CHK Patients	24,459	24,459	24,459	
Total Expenditure per CHK patient	**FRw 10,222**	**FRw 8,545**	**FRw 21,959**	

Of their total revenue, public district hospitals declared 8 percent from public sources, 13 percent from private households, and 79 percent from donors. Church-owned district hospitals reported similar revenue distributions with 5 percent from the government, 17 percent from private sources, and 78 percent from donors. Also, church-owned hospitals reported revenue from contracting with employers who covered health services for employees. Compared to the overall health sector, district hospitals receive more donor and less government resources. Translated into spending per patient, district hospitals receive FRw 132 per patient from the government, FRw 289 per patient out-of-pocket spending, and FRw 1,536 per patient from international organizations, which is considerably less compared to referral hospitals (Table ES-11).

Table ES-11: Sources of Revenue for District Hospitals in 1998 (in FRw per Hospital)

District Hospitals	Public Funds	Private Revenue (patient and other)	Foreign Assistance	Total Revenue
19 Public District Hospitals	10,292,362	15,389,640	97,337,259	123,019,261
Distribution of Sources	**8%**	**13%**	**79%**	**100%**
10 Church District Hospitals	5,743,910	19,883,780	89,979,214	115,606,904
Distribution of Sources	**5%**	**17%**	**78%**	**100%**
Total Number of Patients	121,935	121,935	121,935	
Total expenditure per patient	**FRw 132**	**FRw 289**	**FRw 1,536**	

Capacity and Utilization in Referral and District Hospitals

Table ES-12 presents capacities and patient utilization at referral and district hospitals. Of the overall 5,207 hospital beds in Rwanda, 17 percent are in referral hospitals, 59 percent in public hospitals, and 24 percent in church-owned district hospitals. The University Hospital in Butare, with a capacity of 373 beds, reported in the MOH Annual Report 6,257 hospitalizations and 13,504 ambulatory care consultations, and an occupancy rate of 46 percent. For NHA purpose, patient revenue at the HUB is assumed to be FRw 100,000,000. The HUB operates at a considerably lower productivity level than the Central Hospital of Kigali, which counted 515 beds, 90,362 ambulatory consultations, 24,459 hospitalizations, and a 99 percent occupancy rate.

Generally, hospital occupancy rates are low, between 40 to 46 percent, with the exception of the CHK. The average number of patient admissions per day is 10 in public district hospitals and slightly more, 14, in church-owned district hospitals. On average, a patient pays more than twice as much to be hospitalized at a public referral hospital compared to a district hospital. An important part of the CHK activities are related to secondary care. Also in 1998, the CHK had four price categories, with prices depending on patients' socio-economic status. However, financial results of the distribution of patients into the four categories has not been documented.

Table ES-12: Hospital Capacity and Utilization in 1998

All Hospitals	No. of Beds	Occupancy Rate	ALOS	No. of Admits	Distribu-tion % of Beds	Distribution % of Admits.
MOH Referral (CHK, HUB)	888	46% - 99%	8.2	30,716	17%	20%
19 Public DH	3,059	40 %	6.4	70,974	59%	46%
10 Church DH	1,260	44 %	4	50,961	24%	33%
Total Hospitals	**5,207**			**152,651**	**100%**	**100%**

Source: Republic of Rwanda 1996; hospital NHA for public and church-owned hospitals, private sector information is not available.
Note: DH = district hospital

Outpatient Care

Most patient encounters take place in outpatient care facilities. Table ES-13 shows that the large majority of patients (88.6 percent) who needed outpatient care went to a health center, whereas 10 percent went to a hospital.

Table ES-13: Total Outpatient Visits in Hospitals, Health Centers, and Private Clinics

Category	2 MOH Referral Hospitals	19 Public DH	10 Church DH	Health Centers	22 Private Physicians	Total Visits
Average revenue from patients per visit	N/a	N/a	N/a	FRw 482	FRw 4,893	**N/a**
Total number of visits	103,866	94,750	112,009	2,829,838	51,722	**3,192,185**
Distribution % of total outpatient visits	3.3%	3.0%	3.5%	88.6%	1.6%	**100%**

Source: SIS for health centers, NHA for DH and private physicians, Republic of Rwanda 1999b referral hospitals; private hospital information is not available.

Health centers receive 11 percent of total health funds and provide 89 percent of total outpatient visits. The centers provide curative and preventive care services as well as deliveries and hospitalization. User fees are the major source of revenue for health centers. In 1998 health centers had a total of 2,829,838 patient encounters, which corresponds to 34 visits per health center per day.[1] On average, a patient paid FRw 482 per encounter at a health center.

Health centers reported 90 percent of their revenue was generated by direct out-of-pocket payments by patients; international organizations contributed 8.5 percent and the rest came from the government. Health centers might have underestimated the donor and government contributions, as they do not include drug donations and salaries of public paid civil servants in their accounting systems. Health centers expenditures are equally distributed, with one-third on salaries, one-third on drugs, and the remaining third on other operational expenditures.

[1] This result of health center consultations per day is based on 330 health centers and 250 work-days.

Few patients reported an outpatient visit with church-owned district hospitals (3.5 percent), with referral hospitals (3.3 percent), with public district hospitals (3 percent) and in private clinics (1.6 percent). Adjusted results for 22 physicians in private practice account for overall 51,722 patient contacts per year, which corresponds to 9.4 consultations per physician per day.[2] Overall, 22 physicians in private practice reported total extrapolated patient revenue of FRw 253,079,101. This corresponds to an average of FRw 4,893 per consultation, of which 22 percent is generated by drug sales.

Donor Assistance

Health care in Rwanda is heavily supported by international aid. Donor allocation occurs at two levels. The first level involves a flow of fund from the donors to the MOH central level, regional level, and district level. As the MOH regions and districts become recipients of donor funds, they become financing agents to a small extent, similar to the MOH central-level administration. Most aid comes in the form of projects that are negotiated and developed between each donor and Rwandan authorities. The second level of donor assistance is in the form of direct flows from the donors to service providers, both private and public. This aid is usually in the form of equipment, drugs, vaccines, etc. In 1998, donors spent FRw 16 billion in the Rwandan health sector, which corresponds to almost half of the overall health sources. This level of donor assistance is not sustainable in the long run.

Data on donor assistance is limited. Based on the results from the donor survey conducted by the Partnerships for Health Reform (PHR), rough estimates on donor assistance can be made. Tables ES-14 and 15 show the breakdown of the donor assistance by recipients. The bulk of the donor support goes to MOH entities (83 percent), followed by support to NGO and church facilities (15 percent), and the rest to private hospitals, clinics, and pharmacies.

Table ES-14: Donor Contribution by Type of Facilities (FRw, 1998)

Type of Facility	Amount FRw	Percent
Ministry of Health		
Central	944,192,178	6%
Programs	2,826,138,906	18%
Regions	2,645,350,101	17%
Districts	2,417,081,254	15%
District Hospitals	2,408,074,060	15%
Health Centers	1,084,163,939	7%
Pharmacies	284,945,052	2%
Tertiary Hospital Admin	699,350,511	4%
Local NGO and Church Operations		
NGOs and churches	305,851,110	2%
Hospitals	1,171,599,883	7%
Health Centers	944,348,071	6%

[2] The number of private physician consultations per day is based on 22 physicians and 250 work-days.

Private Sector		
Hospitals	182,492,589	1%
Clinics	45,623,147	0%
Pharmacies	42,493,925	0%
Total	16,001,704,726	100%

Table ES-15: Health Expenditures of International Organizations in 1998

International Organizations	TOTAL FRW	TOTAL US$	Percent
Total MOH Support	13,309,296,001	41,985,161	83%
Total NGO Support	2,421,799,065	7,639,745	15%
Support to Private Facilities	270,609,661	853,658	2%
Total Disbursed to Rwanda	**16,001,704,726**	**50,478,564**	**100.0%**

Source: NHA 1998, International Organizations

The major donors in the Rwandan health sector are the Belgian Cooperation, Norwegian Peoples Aid, the European Union, the World Bank, and the World Food Program. The current MOH management information system does not provide comprehensive information on donor expenditures on different levels and for different line items or functions. There is limited donor coordination leading to duplication of efforts. This forces the MOH to devote significant amounts of time and effort to coordinate donors' priorities and projects. The Rwandan MOH has therefore realized the need to move away from a project approach towards a sector-wide approach in health care financing with long-term strategic development that is integrated into the budgetary process of the country.

Results from HIV/AIDS NHA

In light of the fact that the current HIV/AIDS prevalence rate has risen to 11 percent of the adult population, i.e., 400,000 people, a dire need exists for research and analysis to comprehend the full scope of this problem in order to effectively address it. AIDS is not only a health problem but has strong social and economic dimensions, and it is competing for limited resources with other urgent health care demands such as malaria, diarrhea, respiratory infections, etc. A study was conducted in collaboration with the MOH and technical assistance from PHR within the NHA framework, to collect information on health financing and utilization related to AIDS from donors, government, MOH, and from public and private providers. The results of the study revealed that 85 percent of the AIDS expenditure was on treating symptoms and opportunistic infections caused because of the virus and only 15 percent of the total expenditure was associated with direct AIDS related care. A survey was also conducted on 350 sero-positive individuals to estimate households' health service use and out-of-pocket spending, demographics, and to develop socio-economic profile for these individuals.

Prevalence in rural areas has increased from 1.3 percent in 1986, reaching urban levels of 10.8 percent in 1997. Highest prevalence rates (20 percent) were found among women in ages 25-34, as well as among respondents working in the service sector (16-19 percent), in other words, those who are economically most productive. Individuals with a prior history of STDs are two to three times more likely to be infected with the virus than those without such history. Females are up to two times more likely to be infected than men. Both rural and urban areas in Rwanda report relatively high prevalence of STDs, indicating a widespread of STDs and HIV in the country. PNLS found 70 percent of commercial sex workers tested sero-positive and only 10 percent of them practiced protected sex, with clients determining the use or non-use of condoms.

Voluntary testing and adequate counseling is lacking in the country, particularly in rural areas. Further, patients who test positive are very likely to be un-informed about their health status. Treatment for people with AIDS is not covered by any health insurance in Rwanda. Thus, access to care for the 400,000 people living with AIDS (PLWA) in Rwanda is determined by the patients' ability to pay user fees as well as their access to financial support, separating patients into four "access groups." Table ES-16 provides an estimate about treatment for AIDS patients, and their socio-economic background.

Table ES-16: The Level of Access to Treatment for Rwanda's 400,000 PLWAs in 1999

Group	PLWAs and the economic sector in which they are active	Treatment paid by out-of-pocket user fees	Place of treatment	Number of PLWAs
1.	High-income group, able to pay high user fees, and supported by employers, active in service and manufacturing sector.	Triple-therapy, Treatment of symptoms and opportunistic infections	**Outpatient**: Physicians in referral hospitals and private sector.	About 202 patients (0.05% of all PLWA)
		Treatment of symptoms and opportunistic infections	**Inpatient**: Physicians in referral hospitals and private sector.	About 202 patients (0.05% of all PLWA)
2.	Middle-income group, able to pay high user fees, and supported by employers, active in service and manufacturing sector.	Treatment of symptoms and opportunistic infections	**Outpatient**: Physicians in referral hospitals and private sector	About 40,000 patients (10% of all PLWA)
			Inpatient: Physicians in referral hospitals and private sector.	About 40,000 patients (10% of all PLWA)
3.	Lower-income group, active in informal and subsistence agricultural sector. Access to care supported by family members, friends, and church. (Nandakumar, 2000)	Treatment of symptoms and infections. Access to drugs on MOH essential drug list. Hospitalization and treatment into lowest of 4 price categories. Usually hospitalized in end-stage or with tuberculosis.	**Outpatient**: Nurses in public and church-owned health centers.	About 300,000 PLWA (about 75% of all PLWA)
			Inpatient: Physicians in district and referral hospitals	About 300,000 PLWA (about 75% of all PLWA)
4.	Subsistence agricultural sector	No access to basic health care.	Traditional healers	Unknown number, estimate of +50,000 PLWA

Summary Statistics for NHA AIDS Rwanda

The following tables summarize NHA AIDS information for Rwanda based on the two AIDS-specific matrices indicating sources to financing agents and financing agents to service providers.

Table ES-17: Summary Statistics for NHA AIDS in Rwanda (1998)

Estimated Population Living with AIDS (1999)	400,000 adults	
Prevalence Rate Adults (1999)	11 percent	
Total Health Expenditures (NHA 1998)	FRw 31,678,228,702 (US& 99,931,321)	
Total AIDS-related Health Expenditures	FRw 3,151,394,510 (US$ 9,941,308)	
Percent of Total Health Expenditures spent on AIDS	10 %	
Of Public Health Expenditures	1 %	
Of Private Health Expenditures	29 %	
Of Donor Health Expenditures	1 %	
Sources of Funds Distribution:	Total health (NHA98)	AIDS-related funds
Public	10%	1%
Private	40%	94%
International Organizations	50%	6%
Uses of Funds		
MOH Facilities	66%	
NGO or Church Facilties	30%	
Private Facilities	4%	
Total AIDS Expenditures as Percent of Nominal GDP		0.5%

Source: UNAIDS 2000, Rwanda NHA 1998 Report

Sources of Funds

As evident in the Table ES-18, households are the predominant source for funds, accounting for almost 94 percent of the total, followed by donor contribution of 6 percent, and a less than 1 percent by the MOF.

Table ES-18: NHA / AIDS Matrix Sources to Financing Agents (FRw) 1998, '000s

	Sources				
Financing Agents:	**MOF**	**Donors**	**Households (1999)**	**Total FRW**	**Percent**
Ministry of Health	27,877,604			27,877,604	0.9%
PNLS		141,090,994		141,090,994	4.5%
Local NGOs and Churches		35,119,162		35,119,162	1.1%
Private Insurance				0	0.0%
Out-of-pocket Households			2,947,306,750	2,947,306,750	93.5%
Total HIV/AIDS Sources: FRw	**27,877,604**	**176,210,156**	**2,947,306,750**	**3,151,394,510**	**100.0%**
Percent Distribution	0.9%	5.6%	93.5%	100.0%	
Total HIV/AIDS Sources: US$	**87,942**	**555,868**	**9,297,498**	**9,941,308**	
Percent of total health sources	1.0%	1.1%	28.6%	9.9%	

Major data gaps and discrepancies do not facilitate tracking the flow of funds for AIDS care. The PNLS budget of FRw 141 million is estimated based on amounts the donors indicated they had remitted to PNLS during 1998. A record of total donor receipts or its annual budget was not available at PNLS. However, PNLS revealed that its total expenditure in the same year amounted to FRw 155.9 million. This implies either a deficit of FRw 14.8 million or and additional source of income for PNLS that could not be identified (see Table ES-19).

Uses of AIDS Funds

Table ES-19 shows 66 percent of the AIDS money was spent at MOH facilities or programs, 30 percent at church health centers, and the remaining 4 percent in private clinics. Households spent FRw 2.9 billion (93.5 percent) on AIDS and HIV/AIDS related treatment. A major proportion of the out-of-pocket household expenditure (85 percent) was spent on symptoms and opportunistic infections that are caused by the virus; only a small fraction (15 percent) was spent on antiretroviral drug therapy for AIDS infection. It is assumed that the remaining 6.5 percent of the total resources for AIDS contributed by the MOH, PNLS, and local NGOs were predominately used to finance non-treatment costs such as prevention and outreach programs.

Table ES-19: NHA HIV/AIDS Matrix Financing Agents to End Users (FRw) 1998

	Financing Agents:					
Uses	**MOH**	**PNLS**	**Local NGOs Churches**	**Out-of-pocket Households**	**Total FRw**	**Percent**
MOH Programs	27,877,604	155,905,259			183,782,863	5.8%
MOH Referral Hospital				934,318,990	934,318,990	29.6%
MOH HC				945,300,000	945,300,000	30.0%
Church HC				945,300,000	945,300,000	30.0%
Private Clinics				122,387,760	122,387,760	3.9%
Unaccount. funds		-14,814,265	35,119,162		20,304,897	0.6%
Total FRw	**27,877,604**	**141,090,994**	**35,119,162**	**2,947,306,750**	**3,151,394,510**	**100.0%**
Percent	0.9%	4.5%	1.1%	93.5%	100.0%	
Total US$	**87,942**	**445,082**	**110,786**	**9,297,498**	**9,941,308**	

Table ES-20 summarizes the breakdown of the total AIDS expenditure by type of treatment. Approximately 14 percent was used to treat AIDS in the form of antiretroviral drug therapy, another 79 percent to treat opportunistic infections, whereas the remaining 6.5 percent was spent on non-treatment related activities organized by the MOH, PNLS and local NGOs.

Table ES-20: Treatment and Preventive Uses of AIDS Funds in 1998/99

Treatment and Non-Treatment Uses	FRW	US$	Percent
AIDS treatment (antiretroviral) paid by patients	453,288,000	1,225,130	14.3%
HIV/AIDS related treatment paid by patients	2,494,018,750	8,072,368	79.2%
Non-treatment related costs (preventive use)	204,087,760	643,810	6.5%
Total AIDS/HIV Uses	**3,151,394,510**	**9,941,308**	**100%**

Results from HIV/AIDS Household Survey

According to Nandakumar et al. (2000), the household survey of 350 HIV-positive individuals either enrolled in a HIV/AIDS support group or seeking care at four selected health facilities estimates their socio-demographic status, their use of and expenditures on health services, and how these expenditures were financed. For the entire sample the annual per capita rate of health service utilization translated to 10.92 outpatient visits. This compares with a per capita use rate of 0.29 outpatient visits for the general population in 1998. Significant differences emerged in use rates according to gender, marital status, income, and place of residence. Similar differences also emerged in terms of the level of expenditures on health services.

Annual per capita health expenditures by the sero-positive respondents in the sample was US$ 63 which constituted a significant proportion of total household expenditures and was considerably more than the average household per capita health expenditure of US$ 2.68. Less than 30 percent of households were able to meet the costs of health services exclusively from their own resources. Most households resorted to multiple ways to pay for health care including receiving assistance, borrowing, and selling assets. Sixty-six percent of households received some kind of assistance, 18 percent had to

borrow money to pay for care, and 5 percent had to sell assets. At a minimum, the household survey findings highlight gender, income, and place of residence inequities in the use of and expenditures on health services as well as the ability to mobilize non-household resources to pay for care. Clearly, policy interventions are required to address these inequities.

Discussion of AIDS / NHA Results

NHA points to several weaknesses in equity and efficiency of HIV/AIDS funding that need to be improved, considering 400,000 people are living with the HIV in Rwanda.

- Approximately 10 percent of all health monies were used in 1999 to target prevention and treatment of the HIV that affects 5 percent of the population.

- There are equity and efficiency issues pertaining to the AIDS resources as well. Only 16 percent of MOH funds are spent on delivery of care (personnel costs). The remaining 84 percent are spent on travel (27 percent), office supplies (19 percent), operational maintenance (23 percent), and operational supplies (15 percent).

- Of the total HIV/AIDS funds that entered the health sector in 1999, only 6.5 percent went to non-treatment-related and prevention activities, 14.3 percent was used for antiretroviral treatment by 202 patients, while the remaining 79 percent was used to pay for care of symptoms and infections caused by the virus.

- Households contribution to total HIV/AIDS sources is disproportionately high, and reflected 93.5 percent of all AIDS funds in 1999. Donors contributed 5.6 and the GOR 1 percent. A very small percentage of individuals are able to meet their the AIDS-related care expenditure with their own resources, giving rise to a significant equity issue.

- In the absence of insurance coverage for treatment of symptoms and opportunistic infections caused by the virus, households' access to care is determined by their ability to pay user fees, which limits access to treatment to the 202 PLWAs of the highest-income group in 1999. In one of the districts where the prepayment scheme was implemented, sero-positive individuals were included in the scheme. Results from the study so far are promising and have significant policy implication for nationwide implementation of such a scheme. Such a scheme will enhance the equity and accessibility of care to majority of AIDS patients.

- The availability of HIV/AIDS utilization and finance data is limited by the following two facts:

  - Few health facilities provide HIV testing, inform patients about the test result, and collect HIV/AIDS-related utilization and financial information in an accurate documentation system.

  - There is a lack of a comprehensive financial management system within the MOH and its programs, which would allow planning, management, and evaluation of financial resources invested in alleviating the HIV/AIDS situation in Rwanda.

Cross-country Comparative Analysis

Table ES-21 shows Rwanda reported higher mortality for mothers, children under five, and infants in 1997 compared to 1991, as well as compared to other Sub-Saharan and low-income countries. Rwanda's infant mortality rate and under-five mortality rate of 131 and 205 per 1,000 live births in 1996 are considerably higher than the average for Sub-Saharan Africa. The average life expectancy at birth in Rwanda in 1997 is comparable to the average of the region. The total fertility rate is higher (6.5 in 1996) than in Sub-Saharan Africa (5.6) Republic of Rwanda 1999d.

Table ES-21: Health Outcome Indicators in Rwanda Compared with Sub-Saharan Region and Low Income Countries

Region / Country Year	Maternal mortality ratio per 100,000	Mortality rate under age 5 per 1,000	Infant mortality rate under age 1 per 1,000	Estimated HIV Prevalence	Life expectancy in years
Sub-Saharan Africa (97)	430	147	91	9 %	49
Low-income Econom. (97)	308	100	80	5 %	61
Rwanda (1997)	810	205	131	11 %	48.5
Rwanda (1991)	300 (1988)	150	84	n/a	46

Source: Republic of Rwanda 1999d, World Bank World 1993, World Health Organization 1999, Republic of Rwanda 1992

As evident in Table ES-22, Rwanda reports lower overall per capita health expenditure and GDP per capita than most of its neighboring countries other than Tanzania. The total health expenditure as a percentage of GDP in Rwanda is also one of the lowest in the region. Private spending is significantly higher than public spending in the region, including Rwanda, with an exception of Zambia. The proportion of donor assistance in Rwanda far exceeds all its neighbors.

Table ES-22: Health Funding in Rwanda and other Sub-Saharan Countries

Country (Year)	Per Capita GDP (US$)	Total health expenditure per capita (US$)	Total health expend. as % of GDP	Public health expend. as % of total health spending	Private health expend. as % total health spending	Foreign assistance as % of total health spending
Rwanda (98)	253	12.7	5	10	40	50
Kenya (94)	350	21	7	28	64	8
Uganda (98)	310	15	4.7	18	50	32
Tanzania (98)	210	6	2.8	N/a	N/a	N/a
Zambia (98)	400	16	6	48	37	14

Source: NHA Rwanda 1998, World Bank 2000, supplemented with information collected from other countries at NHA workshop in Capetown in April 2000

The Rwandan government spends considerably less on health care, with 2.5 percent of overall government expenditures, than its neighbor Tanzania, with 12.5 percent. Other Sub-Saharan countries spend an average of 5 percent of their total government expenditure on health care. Compounding the

situation in Rwanda is the fact that the Ministry of Health has been unable to fully utilize its budget allocation. Thus, even if the government of Rwanda were to increase its allocation to the health sector, there will have to be a corresponding increase in the capacity of the MOH to be able to absorb and effectively use these allocations.

Process and Lessons Learned

Some of the key lessons that can be gleaned from the first round of NHA exercise are listed below:

- **Lack of valid and reliable data:** A main constraint in the interpretation of results reported by NHA is the limited availability of valid and accurate financial data. Lack of adequate information systems has resulted in data gaps, particularly donor contributions. The problem of limited data is further exacerbated by a shortage of trained personnel to manage financial and information systems.

- **Excessive reliance on donor assistance:** Contributions of international organizations amounting to almost half of total health sector funding are unsustainable from both donor and government perspectives. Donors fund approximately $6.40 out of the $12.70 of per capita health expenditure. For developing a sustainable health care system, the government should develop a plan to mobilize additional internal resources in anticipation of decrease in donor funding.

- **Equity issues:** The primary mode of payment for health care is in the form of out-of-pocket payments, which can raise equity concerns for poorer households as health care will consume a higher amount of their total income. High household out-of-pocket costs impact access to care for majority (70 percent) of the population that lives in poverty. This is particularly relevant for AIDS-related care, as 93 percent of the care is in the form of out-of-pocket payment. Although the MOH plays a rather small part in financing health care, it becomes through donor funding the largest financing agent as well as owner of facilities and producer of health care services. Therefore, the onus of providing care equitably is even greater. MOH spends most for specialized treatment abroad for a selected number of 102 patients, with FRw 3,398,482 (US$ 10,721) per patient, whereas overall per capita health care expenditure is FRw 4,019 (US$ 12.68).

- **Inefficiency:** Inefficiencies exist at various levels. There is gross underutilization of the existing capacities at the MOH as well as its facilities. NHA results reveal that the MOH is unable to fully utilize its annual allocation. Low occupancy and consultation rates in hospitals and health centers result in excess capacity and scarce personnel and financial resources being under utilized or wasted. The inefficiencies in the system are further pronounced when the AIDS-related MOH spending is analyzed. The results reveal that only 16 percent is spent of delivery of care, and the remaining 84 percent is spent on non-care-related secondary activities.

- **Alternative payment methods:** Private firms contribute a significant proportion of health care expenditure for their employees and their family members. Thus, funds generated from the formal employment sector could be reorganized in form of prepayment schemes with health care facilities that provide quality care. Insurance companies' role as financing intermediaries is negligible, covering approximately 0.6 percent of the total population.

Policy Issues

Rwanda's first National Health Accounts exercise for the year 1998 has policy implications at two levels. The first level is the lessons learned during the overall NHA development and implementation process. On a second level, NHA data aims to provide insight into the status of the Rwandan health sector, and suggest specific policy implications.

> **Improve financial data collection and reporting process:** Specifically the current information and data system can be improved by addressing three constraints identified during this NHA implementation process, namely:

  - Design and implement comprehensive modern accounting and information system;
  - Train manpower capable of establishing a sound data collection mechanism and conducting the analysis; and
  - Develop quality controls and checks for seamless interactions and transactions between sources, financing agents, and users to ensure reliable accurate data.

> **Sustainability and affordability of health care:** Under the prevailing economic conditions, Rwanda's external dependency is not sustainable. With donors indicating a reduction in their level of financial support to Rwanda, there is a need for the government to follow its social responsibilities and develop plans to mobilize internal resources to ensure that the current health system will remain affordable to the majority of the population. Given the low per capita public contribution to health of FRw 396 in 1998, NHA analysis suggests that the GOR significantly increase government spending on health. The increase of public expenditure should at least reach the level of private household spending of FRw 1,592 per capita, and target improving accessibility to health care for vulnerable groups. This will require the government to increase its outlays to priority health services, expand the successful experimentation with prepayment schemes to other parts of the country, develop health insurance schemes for those in the formal sector, and create a well defined publicly funded safety net for vulnerable populations.

> **Equity Implications:** In 1999, with a view to increase risk sharing, reduce the burden of out-of-pocket costs, and improve access to basic health services for the poor, the government introduced prepayment schemes that offer health coverage to the low-income rural populations in three Rwandan health districts. The effort is commendable but should be continued enhanced and implemented nationwide.

  NHA analysis reveals government financing is largely used to cover personnel and functioning costs at administrative levels. Public sources that finance the provision of care are mainly channeled to cover the cost of care for a limited number of patients who are sent to Europe or South Africa (FRw 3.4 million per patient), and to finance care in referral hospitals (FRw 10,222 per patient).

> **Expanding health insurance coverage to the uninsured:** This NHA analysis indicates very few people have benefited from health insurance coverage in 1998. Health insurance was mainly offered through formal sector employment, targeting a very small population group of approximately 0.6 percent of the total population, or 5.9 percent of the formal sector work group. NHA also reveals that private firms pay relatively high health care costs (FRw 5,228 per capita per year), a contribution that should be integrated in a fairly financed risk-sharing plan. Prepayment schemes have so far improved access to health care for the low-income rural population and at the same time mobilized additional local resources.

Prepayment scheme members contribute five times more to health care per year (FRw 580 per capita) than non-members (FRw 104 per capita) in, for example, the district of Byumba.

- **Efficiency:** A comparison with its neighboring countries (e.g., Tanzania) reveals that better health should have been attained with the money invested. There is clearly room to improve both the allocative and technical efficiency of the system in order to achieve better health outcomes. Due to increasing user fees, consultation rates in health centers have decreased, leaving some facilities overstaffed with low productivity per worker whereas others suffer from staffing shortages in the face of high demand for services. Linking resource allocation to demand and health indicators and conducting a systematic assessment of how inputs are used in referral and district hospitals can contribute to improving both allocative and technical efficiency.

Recommendations by NHA Team for Institutionalization of NHA

The discussion of first NHA results in April 2000 led to the following suggestions made by participants:

- The availability of valid accounting data in public and private sectors should be improved in preparation for future NHA exercises.

- A management information system should be developed for implementation of data collection on a regular basis.

- Standardized definitions and rules should be developed and implemented at all entities.

- The Ministry of Local Administration stated a need for more than 1,000 accountants to implement successfully decentralization in public administration. This requirement for trained human resources has synergies with NHA needs.

- A second round of NHA should be done for the year 2000 to keep up the enthusiasm for improved data collection and provide longitudinal analysis for the Rwandan health sectors in anticipation of major donor changes as well as implementation of decentralized health budgets and medium term expenditure framework.

- Private sector providers voiced their willingness to develop and implement a routine data collection tool that would facilitate their annual data submission for NHA.

- Participants wanted to be informed about NHA findings so that they could incorporate them into their annual strategic resource planning.

As in many other countries, initially it took some time to get NHA going. However, once all partners in the health sector recognized the additional value that NHA results can bring to their strategic decision making, they repeatedly stressed the need to continue the NHA exercise and explained their willingness to collect and submit better data.

1. Introduction

1.1 Objectives of this Report

National Health Accounts (NHA) are designed to give a comprehensive description of resource flows in a health care system, showing where resources come from and how they were used in the health sector. In 1999, the Ministry of Health (MOH) started the Rwandan NHA process in collaboration with the USAID funded Partnerships for Health Reform (PHR) and the World Health Organization (WHO), with a view to identify the magnitude of health sources and uses and how these funds flowed through the health system. A special component of this activity was using the NHA framework to study the sources and uses of funds for HIV/AIDS.

The objectives of this first Rwandan NHA report are :

- To apply NHA as a tool to evaluate the resource flow in the Rwandan health system;
- To document the magnitude of sources, flow, and uses of funds within the public and private health care sector in Rwanda;
- In particular, to identify the magnitude of health sources and uses, as well as the flow of health funds related to HIV/AIDS in Rwanda; and
- To suggest policy interventions for the overall Rwandan health sector and for the HIV/AIDS part to improve access to and affordability of health care.

PHR has worked on conducting NHA studies in several developing countries in the Asia and Near East Region, Latin America, as well as other Eastern and South African countries. Rwanda is part of an 11 country regional NHA initiative in Sub-Saharan Africa.

1.2 NHA in the Context of Other Health Information

As part of the reconstruction of the health sector, the MOH started collecting health utilization and finance data in health centers (since 1997) and hospitals (since 1999) through the Health Information System (*Système d'Information Sanitaire*, SIS). Since 1996, the MOH produces an annual report on health sector activities.

In addition to the above routine data collection, the Health Financing Study carried out by the MOH/ HERA and the World Bank for the year 1997, provided detailed insight on utilization, cost, and finance of health services in public and church-owned district hospitals and health centers. In 1999, the MOH conducted the first expenditure review of the public health sector, a description of public and international expenditures in the public sector. However, the MOH decided more detailed information was needed about the sources, flow, and uses of health funds in the public and private health sector to aid policy formulation and chose NHA as the methodology to gather this information. As a consequence, Rwanda became a member country of an NHA African Regional Initiative with 10 other Sub-Saharan countries.

Within the framework of the NHA regional initiative, the 11 countries met three times to discuss methodology and implementation of NHA, and present results. During the first workshop, representatives from the participating countries learned about the NHA concept and methodology. The Rwandan team was headed by the Secretary General of the MOH. Following this, the NHA steering committee was established and a technical team was put in charge of adapting the methodology to Rwanda, and to collect and analyze data. During several meetings and workshops in Kigali as well as throughout the country, representatives from health regions, districts, hospitals, and international organizations were trained on the NHA data collection process in Rwanda. During the second Regional NHA meeting in Zambia, country teams provided information about the stage of their implementation processes. At the third and final NHA workshop, the countries presented their NHA results, discussed the lessons learned during the process, and policy implications.

The implementation of NHA in Rwanda took place at a time when the Government of Rwanda (GOR) decentralized public administration and financing from the central to a prefecture level. National Health Accounts have been recognized as a tool to document and monitor resource flows for the health sector from the Ministry of Finance (MOF) to prefectures and health regions. The GOR aims to use NHA to evaluate in a decentralized system the impact of the distribution of health resources on the population's access to care and in the long run their health status. In 2000, the Rwandan government launched the Medium Term Expenditure Framework (MTEF), a methodology that plans and manages health finances in an integrated three-year perspective based on explicit objectives. NHA facilitates the MTEF process by providing additional data and analysis, which will help the MOH to define clear objectives for MTEF and at the same time target public and donor spending.

The MOH aims to receive information from this first NHA analysis to draw conclusions on health care expenditure at all levels of Rwanda's public and private health sector, and in particularly on AIDS-related funds. Once implemented, the NHA exercise should be continued and institutionalized as a routine process.

1.3 Overview of NHA/AIDS Activities

While NHA provides an overview of the overall public and private financing of health care, specific chapters in this report describe HIV/AIDS financing and expenditures on preventive interventions as well as health care services consumed by those who have HIV/AIDS. These health care services include the treatment of symptoms and opportunistic infections of sero-positive people. Within NHA, the MOH collected information on health financing and utilization related to HIV/AIDS from donors, the government, the MOH, and from public and private providers. With a survey conducted on 350 sero-positive individuals, households' health service use and out-of-pocket spending, demographics and socio-economic characteristics were identified (Nandakumar et al., 2000).

In 1998, information on use and financing of HIV/AIDS prevention and treatment was very limited. Therefore, the MOH decided to collect AIDS information from providers for 1999, whereas government and donor information was used from NHA 1998, assuming that these two latter sources remained on a similar level. Thus, AIDS/NHA will be a synthesis of data from these two years.

2. Overview of Health System

2.1 Socio-Economic Background

With an estimated nominal Gross Domestic Product (GDP) per capita of US$ 253 in 1998, well below 1990 GDP per capita of US$ 270, Rwanda is one of the poorest countries in the world. Real GDP growth rate was 9.6 percent in 1998, and real average annual growth is projected to slow down to 6.8 percent from 1999 to 2003 (World Bank, 1999). Rwanda has a population of about 7,883,000, half below the age of 20 (Republic of Rwanda 1998b). The annual population growth rate was 2.8% in 1998, the same level as reported for Sub-Saharan Africa. Approximately 90 percent of the Rwandans are active in agriculture, the most labor intensive and least productive sector, which produces approximately one-third (37 percent) of the country's GDP. Industry and manufacturing constitute about 23 percent of GDP and employ 2 percent of the population, whereas 7 percent of the labor force works in the service sector producing 43 percent of GDP. Agricultural products, mainly coffee and tea, account for 80 percent of the country's exports (Republic of Rwanda 1999d). In spite of this, most agricultural activity remains at the subsistence level with produce consumed primarily by households and the community.

Since the destruction caused by the war in 1994, Rwanda's economy has been recuperating mainly due to external resource inflow, and less due to the recovery of domestic production. In 1997, Rwanda received almost twice as much external aid per capita (US$ 42.6) as did Sub-Saharan Africa (US$ 26). Rwanda's external and domestic debt rose rapidly from just under US$ 400 million in 1985 to about US$ 1 billion in 1996, and to US$ 1.4 billion in total debt stocks (including arrears) by the end of 1998, equivalent to 72 percent of GDP. In 1998, the Rwandan government spent on a per capita basis US$ 6.80 on debt service (Republic of Rwanda 1999d).

Despite this strong external support, the progress achieved since the genocide in 1994, and the recent favorable GDP growth experience, Rwanda's social indicators remain poor. Between 1993 and 1997, the number of households below the poverty line rose from 53 to 70 percent. In 1998, poor households' average income was further below the poverty line than before the genocide in 1994 (World Bank 1998). This decline in living standards coupled with rapid population growth will increase the demand for social services such as health and education and increasingly strain the limited resources of the government. This reinforces the need to develop and implement policies that will increase access to basic health services to the poor and vulnerable populations.

2.2 HIV/AIDS in the Context of Rwanda's Socio-Economic Situation

Sub-Saharan Africa has less than 10 percent of the world's population but it accounts for 80 percent of AIDS deaths, 70 percent of new infections, 95 percent of the world's AIDS orphans, and 90 percent of children with AIDS or with HIV infections (Bloom, 1999). First AIDS cases were identified in Rwanda in 1983. By the year 2000, Rwanda's HIV prevalence amounted to 11 percent of the adult population, meaning that about 400,000 people carry the virus. AIDS is emerging as a disease of the poor, and as a disease that further impoverishes the poor. In the absence of health insurance in Rwanda, access to AIDS related treatment is determined by patients' ability to pay user fees. Besides households' out-of-pocket payments, additional resources from donors and the

Rwandan government enter the Rwandan health care sector to pay for HIV/AIDS-related health costs. The cost to the health care system is steadily increasing with a growing number of sero-positive patients demanding access to care.

In Rwanda, as in other countries, HIV/AIDS is not only a health problem but has strong social and economic dimensions, and it competes for limited resources with other urgent health care demands such as malaria, diarrhea, and respiratory infections. In 1997, the Ministry of Health National AIDS Program (*Programme National de Lutte contre le SIDA*, PNLS) conducted a population-based sero-survey and identified approximately 11 percent of the adult population to be HIV positive. Prevalence in rural areas has increased since 1986 from 1.3 percent reaching urban levels of 10.8 percent in 1997. Highest prevalence rates (20 percent) were found among women ages 25-34 and respondents working in the service sector (16 percent-19 percent)- in other words, among the economically productive population. Males and females with a history of sexually transmitted diseases (STDs), were two to three times more likely to be infected with the virus than those without such history. Females were up to two times more likely to be infected than men. Both, rural and urban areas in Rwanda report relatively high prevalence of STDs, indicating a widespread of STDs and HIV in the country. PNLS found 70 percent of commercial sex workers tested sero-positive and only 10 percent of them practiced protected sex, with clients determining the use or non-use of condoms. Wife inheritance after a sibling death and wife sharing among siblings is still practiced in parts of rural Rwanda, contributing to the spread of the virus. Community studies revealed that AIDS is highly stigmatized in the population, with 60 percent of the respondents saying they would not associate with a person who has AIDS. Knowledge about HIV/AIDS is estimated high, but significant behavior change is not documented and condom use remains low (Republic of Rwanda 1998a).

Sadly enough, the already large number of unaccompanied children caused by the war in 1994 is expected to increase, and life expectancy—already at a low level of 48 years—might decline due to the disease. The limited financial and human resource situation in the health sector will be additionally challenged by the increased demand for care caused by infected individuals and increased health care cost related to it. Given the high prevalence among the economically active service sector population, a negative impact on GDP could eventually be expected, a question Rwanda would like to address in a more elaborate socio-economic impact study.

2.3 Rwanda's Health Sector

In 1998, the MOH started to collect monthly utilization and financial data from public and church-owned health centers through the health information system. A year later, the system was extended to cover district hospitals. At present, referral hospitals, the private sector, international organizations and health insurance companies do not report routine information on health care utilization, revenue, and expenditures. Thus, the availability of reliable data on health care utilization, cost and financing in the public and private sector, as well as insurance coverage remain an issue.

The events of 1994 severely damaged the health infrastructure of the country. International organizations providing humanitarian and development assistance to Rwanda have largely funded both infrastructure and recurrent costs related to the reconstruction of the health sector. During this time, the GOR's contribution to health has remained low, at between 2 and 3 percent of recurrent government expenditures. This is below pre-war levels of between 4 and 8 percent (Republic of Rwanda. 1999c).

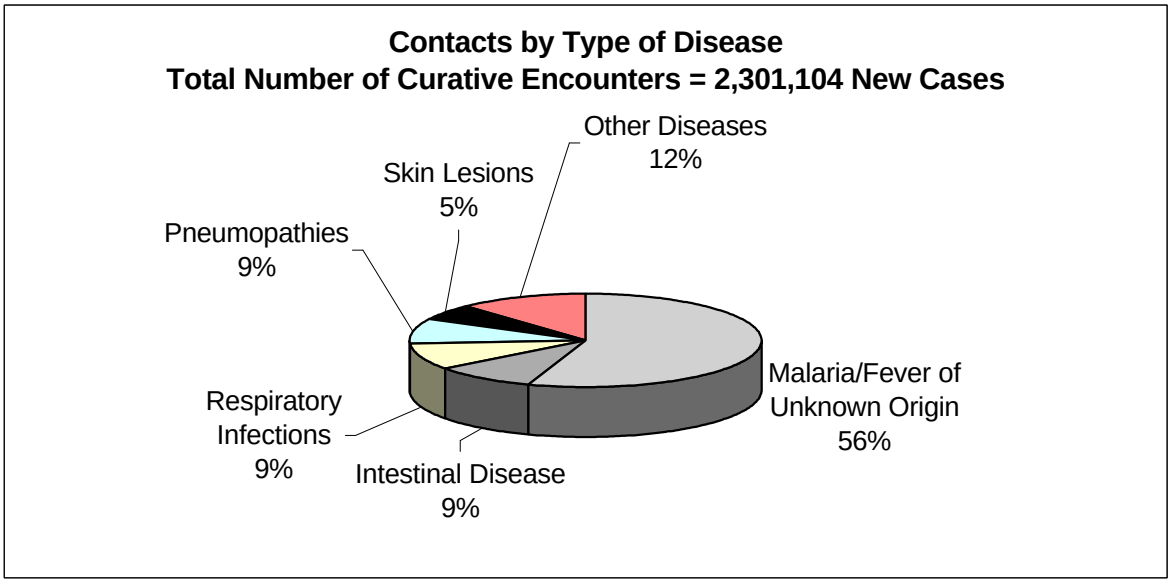
In 1978, Rwanda initiated a system of user fees at both public and church facility (Shepard, 1992). However, between 1994 and 1996, due to the impact of the war and the availability of external

aid, user fees were largely suspended. After 1996, providers in public and church facilities reintroduced fees for health services and drugs at a pre-war level. In 1998, only two insurance companies covered health care. Employers either contract directly with providers or offer care in their own health facilities.

The Rwandan government remains the major provider of health services, with religious organizations being important partners, especially in rural areas. The role of for-profit private providers is still limited but has been growing, mostly in urban areas. Although the Rwandan MOH in collaboration with international organizations created an extensive network of health facilities, shortage of public funds and weak management have plagued many facilities, caused drug and service prices for patients to increase, and patient utilization to drop. In 1998, consultations at health centers averaged a mere 0.28 visits per capita (SIS). Rural populations are probably seeking care either in the traditional sector or at pharmacies and some may even be foregoing needed care because of their inability to pay.

Figure 1 indicates that communicable diseases dominate Rwanda's burden of sickness. The 1998 annual report of the MOH shows that of the 2.3 million patient contacts for curative care services at health centers, 88 percent were for malaria, fever, intestinal diseases, respiratory infections, pneumonia, and skin lesions. A population-based nutrition survey revealed almost half (43 percent) of the Rwandan boys and girls under five years were suffering from nutritional stunting (Republic of Rwanda 1999d). Lower-income families bear a greater proportion of the burden of disease.

Figure 1. Burden of Disease in Rwanda's Health Centers 1998



Source: SIS Rwanda, 1998

The combined effect of the socio-economic situation, low consultation rates, and the high prevalence of malaria, diarrhea, and respiratory infections have contributed to high rates of childhood malnutrition and mortality. Rwandans are most likely to die from poverty-related preventable diseases and infections such as malaria, fever, diarrhea, respiratory infections, and AIDS.

Table 1 shows Rwanda reports higher mortality for mothers, children under five, and infants in 1997 compared to 1991, as well as compared to other Sub-Saharan and low-income countries. Rwanda's infant mortality rate and under-five mortality rate of 131 and 205 per 1,000 live births in 1996 is considerably higher than the average for Sub-Saharan Africa. HIV has emerged as a major public health issue in Rwanda, whereas the average life expectancy at birth in Rwanda in 1997 is comparable to the average of the region. The total fertility rate is higher (6.5 in 1996) than in Sub-Saharan Africa (5.6) (Republic of Rwanda 1999d).

Table 1. Health Indicators Compared with Sub-Saharan Region and Low Income Countries

Region / Country Year	Maternal mortality ratio per 100,000	Mortality rate under age 5 per 1,000	Infant mortality rate under age 1 per 1,000	Estimated HIV Prevalence	Life expectancy in years
Sub-Saharan Africa (97)	430	147	91	9 %	49
Low-income Economies (97)	308	100	80	5 %	61
Rwanda (1997)	810	205	131	11 %	48.5
Rwanda (1991)	300 (88)	150	84	n/a	46

Source: Republic of Rwanda 1999d, World Bank 1993, World Health Organization 1999, Republic of Rwanda 1992

National Health Accounts are designed to give a comprehensive description of resource flows in a health care system, showing where resources come from, and how they were used in the health sector. A preliminary NHA estimate for 1998 was based on data from the 1998 Public Expenditure Review and the 1997 HERA report. Estimates showed Rwanda spent US$ 9.69 per capita on health care in 1998, and the country's public and private health sector was financed 64 percent by donors, 27 percent by households, and 9 percent by the government (Nandakumar, 1999). These preliminary results reveal that although Rwanda's total per capita expenditures for health care are in line with other countries on a similar socio-economic level, the donor proportion is unsustainable and the population reports a poor health status. Thus, the capacity needs to be improved to finance, manage, and deliver resources and health services to beneficiaries. The preliminary analysis only reinforced the need to conduct a more comprehensive and systematic NHA exercise in Rwanda.

2.4 Profile of Health System

Administratively Rwanda has a three-level structure: the first is the central-level MOH with four directorates, the second consists of 11 health regions, and the third is made up of 38 health districts. Similarly, care is provided at three levels, with two public referral hospitals, 28 operational district hospitals, and, 283 health centers, 40 dispensaries, and nine health posts. Health centers serve an average population of 23,030 individuals and a district hospital covers 217,428 inhabitants. There are four tertiary care hospitals in Rwanda of which one—King Faycal Hospital (KFH) in Kigali—was privatized in early 1998. The two public tertiary hospitals are the Central Hospital of Kigali (CHK) and the University Hospital in Butare (*Hôpital Universitaire Butare*, HUB). The tertiary-level psychiatric hospital in Ndera is church-owned. Additional tertiary care expenditures accrued to the

government in 1998, with the payment of special treatment costs of 102 patients who were sent abroad.

Table 2 provides an overview of the Rwandan health sector in terms of health services coverage, sources of financing, provider-payer relationships, and the size of operation of each of the health care systems.

Table 2. Profile of Rwanda's Health Systems

Benefits by Health Sub-systems	Access/Coverage/ Special Population Categories	Principal Financing Sources	Provider-Payer Relationship	Size of Operation
MOH and Church-owned Health Services				
Owns and provides comprehensive public health services, primary, preventive and curative care through its facilities. Owns and operates pharmacies.	Available to everybody who is able to pay out-of-pocket user fees. Exempted: Civil servants and dependents; and individuals identified as poor by local authorities.	Ministry of Finance and Economic Planning (MOF) Donor assistance Out-of-pocket payments by patients To a lesser extent: Payments from insurance plans Payments from formal employer sector	MOH facilities are financed through budget allocation of the MOF and have salaried civil service staff. Church-owned facilities receive a budget contribution from the MOH. Donors provide funds through programs and projects. Patients pay out-of-pocket user fees per service and drugs. CSR Social Insurance plan reimburses providers by fee-for-service payments.	3 referral hospitals (CHK, UNR, Ndera) 28 district hospitals of which 10 are owned by the church and 18 are public. 330 health centers of which 138 are church-owned. 1 central drug importer serving public sector (CAMERWA) 32 public pharmacies
Private Health Sector				
Owns and operates private clinics and hospitals for primary and curative care. Owns and operates pharmacies.	Available to everybody who is able to pay out-of-pocket user fees.	Direct out-of-pocket payments by patients Payments from formal employer sector. To a lesser extent: Payments from insurance plans.	Patients pay fees per service and drugs. Capitation agreement between private insurance SUREMED and private hospital. CSR Social Insurance plan reimburses providers by fee-for-service payments.	1 referral hospital (KFH) 166 paramedical dispensaries 55 clinics 3 laboratories 300 retail pharmacies 17 wholesale pharmacies (including 5 importers) Traditional healers

Notes: CSR = *Caisse Sociale du Rwanda*
UNR = Rwanda National University *(Université National du Rwanda)*
CAMERWA = *Centrale d'Achat des Médicaments Essentiels au Rwanda*

2.5 Rwanda's Health Sector and HIV/AIDS

In collaboration with its partners, the MOH and PNLS redefined Rwanda's HIV/STD/AIDS strategy in 1997. A multi-sector approach was selected as the national guiding policy. Health regions are in charge of implementing prevention activities. The PNLS focus is on coordination, monitoring, and evaluation of HIV prevention, resource mobilization, and surveillance (Republic of Rwanda 1998a).

Several health care providers offer HIV testing in urban areas such as Kigali and in Butare. District hospitals or health centers are rather hesitant to screen for the virus, given there is no adequate follow-up for the patient. The Central Hospital of Kigali estimates 60 percent of its patients hospitalized at the internal medicine department to be sero-positive. According to the CHK, patients are not generally screened for the virus, and due to the lack of follow-up and stigmatization of the disease, patients who test positive are very likely not to be informed about their health status. Overall, there is a lack of voluntary testing and adequate counseling in the country, mainly in rural areas.

Based upon discussions with the PNLS, UNAIDS, MOH, and other experts in Rwanda, a framework was developed to estimate the level of access to care for HIV/AIDS patients based upon the sector in which they work and their socio-economic conditions. This is shown in Table 3 where individuals with HIV/AIDS have been classified into four "access groups." Treatment for people with AIDS is not covered by any health insurance in Rwanda. Thus, access to care for the 400,000 people living with AIDS (PLWA) in Rwanda is determined by patients' ability to pay user fees and access to financial support.

Table 3 provides an estimate about treatment for AIDS patients, given their socio-economic background. Only 200 AIDS patients (0.05 percent of total 400,000 PLWA) have adequate resources to allow them access to antiretroviral therapy (tri-therapy). The second group is the 10 percent of the population economically active in the service and manufacturing sector. This middle-income patient group has access to treatment of opportunistic infections in public and private sector facilities, and is often financially supported by their employers' health care contribution (see section 5.3 for employer contributions). The large majority of PLWA (75 percent) is classified in the third access group. This group is constituted of the urban and rural low-income population that mainly seeks care provided by nurses in health centers. Their treatment, mainly against pains and infections, includes drugs on the essential MOH drug lists. An unknown number of AIDS patients seeks care in the traditional healer sector, or remains without access to care at all. They constitute the fourth group in Table 3.

Table 3: The Level of Access to Treatment for Rwanda's 400,000 PLWAs in 1999

Group	PLWAs and the economic sector in which they are active	Treatment paid by out-of-pocket user fees	Place of treatment	Number of PLWAs
1.	High-income group, able to pay high user fees, and supported by employers, active in service and manufacturing sector.	Triple-therapy, Treatment of symptoms and opportunistic infections	**Outpatient**: Physicians in referral hospitals and private sector.	About 202 patients (0.05% of all PLWA)
		Treatment of symptoms and opportunistic infections	**Inpatient**: Physicians in referral hospitals and private sector.	About 202 patients (0.05% of all PLWA)
2.	Middle-income group, able to pay high user fees, and supported by employers, active in service and manufacturing sector.	Treatment of symptoms and opportunistic infections	**Outpatient**: Physicians in referral hospitals and private sector	About 40,000 patients (10% of all PLWA)
			Inpatient: Physicians in referral hospitals and private sector.	About 40,000 patients (10% of all PLWA)
3.	Lower-income group, active in informal and subsistence agricultural sector.* Access to care supported by family members, friends, and church.*	Treatment of symptoms and infections. Access to drugs on MOH essential drug list. Hospitalization and treatment into lowest of 4 price categories. Usually hospitalized in end-stage or with tuberculosis.	**Outpatient**: Nurses in public and church-owned health centers.	About 300,000 PLWA (about 75% of all PLWA)
			Inpatient: Physicians in district and referral hospitals	About 300,000 PLWA (about 75% of all PLWA)
4.	Subsistence agricultural sector	No access to basic health care.	Traditional healers	Unknown number, estimate of +50,000 PLWA

* Nandakumar et al., 2000

Whereas the first chapter and this one provide some insight into the overall information that was available to the MOH when NHA was introduced in 1999, Chapter 3 describes the additional data collection process that has been launched to gather supplementary information on the health sector for NHA purposes. Within this NHA data collection process, all different entities active in the health sector were asked about their AIDS-related activities, which include use, revenue, and expenditure related to care for PLWA.

3. Methodology

3.1 National Health Accounts

National Health Accounts are designed to give a comprehensive description of resource flows in a health care system, showing where resources come from and how they were used in the health sector. A preliminary NHA estimate for 1998 was based on data from the 1998 Public Expenditure Review and the 1997 HERA report. Estimates showed Rwanda spent US$ 9.69 per capita on health care, of which donors financed 64 percent, households 27 percent, and the government 9 percent (Nandakumar, 1999). While per capita expenditures for health care are in line with other countries on a similar socio-economic level, donor support will likely not be sustainable at current levels, and health outcomes remain poor. Thus, the capacity of the government to finance, manage, and deliver health services needs to be strengthened.

NHA can be used to:

- Compile descriptive statistics of the health sector
- Describe the flow of funds throughout the system
- Assist policymakers in setting health care policy priorities
- Assess the performance of health systems
- Identify areas in the Rwandan health sector where equity in the distribution of care can be improved

The NHA activity is a first attempt in Rwanda to describe in a comprehensive manner the flow of funds within its health care sector, including private, public, and international funding. This has been an iterative process, which was refined as more data became available and the methodology evolved. Several training programs were conducted to build local staff capacity to ensure sustainability of this activity in the long run. Primary data collection instruments were developed to complement secondary data sources. Data validation checks were instituted to ensure validity and reliability of data. Finally, and most importantly, a specific HIV/AIDS study was undertaken using the NHA methodology and framework to better comprehend the scope of the AIDS epidemic and overall expenditures associated with it.

3.2 Data Collection Process

The NHA steering committee, headed by the Secretary General of the MOH and comprising representatives from the MOH, MOF, the National Bank of Rwanda, PHR, and WHO, provided guidance and oversaw the entire NHA process. The Committee discussed findings in regular meetings and assisted with their interpretation. A systematic and extensive data collection activity was undertaken. Guidelines were developed to verify the consistency and validity of the data. Data from the MOH health information system SIS were used to document health centers' utilization and financial situation. In addition, a set of questionnaires were developed and sent to the entities shown in Table 4. Entities that are sources of health funds include the government of Rwanda through the MOF, international organizations, public and private firms, and households. Questionnaires were sent to these sources with the exception of private households. At present, the GOR is in the process of fielding a household survey and a demographic health survey. Results from these surveys will be available by the end of the year 2000. In the interim, the household expenditures on health care were approximated using available sources of data reported by health care providers, firms, insurance companies, and pharmacies (see Section 5.2).

Table 4. NHA 1998 Questionnaires Sent and Returned

NHA 1998 QUESTIONNAIRES			
Entities in health sector	**Sent January 2000**	**Returned March 2000**	**Response Rate**
Sources:			
Government entities*	18	6	33%
International organizations	45	23	51%
Employers (public and private)	52	18	35%
(a) questionnaires to sources	***115***	***47***	***41%***
Financing Agents (FA):			
Health region administrative basis	11	10	91%
Health district administrative basis	39	34	87%
Insurance companies	2	2	100%
(b) questionnaires to FA	***52***	***46***	***88%***
Service Providers:			
Hospitals (public and private)	38	31	82%
Pharmacies (public and private)	37	16	43%
Private practitioners	26	6	23%
(c) questionnaires to providers	***101***	***53***	***52%***
TOTAL NHA Questionnaires (a+b+c)	**268**	**146**	**54%**

* Government entities include different ministries (MOH, MOF, Ministry of Justice [MOJ], Ministry of Education [MOE], MOH Directorates, and MOH Programs (PNLS, The National Tuberculosis Program [*Programme National Intégré de Lutte contre la Lèpre et la Tuberculose,* PNILT], National Malaria Program (*Programme National de Lutte contre le Paludisme,* PNLP].

In September 1999, a first round of questionnaires was sent to 268 entities active in nine different categories of the health sector. After three months, only 30 percent of them had been returned and the validity of the information was not satisfactory. In response, the MOH in collaboration with PHR and WHO organized a three-day workshop attended by representatives from the public sector and a one-day workshop with donor agencies. The purpose of these workshops was to have an in-depth discussion about the need for National Health Accounts in the context of health sector reforms. Participants at these workshops were able to appreciate the value of information NHA would provide especially in the context of the government's decision to decentralize the planning functions and set objectives for MTEF. At the conclusion of the workshops in January, 268 questionnaires were re-sent to all entities. A team made up of representatives from the MOH and MOF assisted public sector entities fill out the questionnaires. As a consequence, overall response rate increased to 54 percent by March 2000, and questionnaires were better completed.

Table 4 shows that response rates were low for private practitioners, employers, international donors, and government entities. Budget and expenditure information from the Ministry of Finance was used to fill in the gaps in information for those government entities that did not respond.

Low response rates for private practitioners and employers is explained in part by their fear that any information submitted might be used to their detriment by tax authorities. The special effort with workshops and follow-up visits to improve information gathered from central-level government entities was not very successful. It was not because these government entities were reluctant to share this information with the Ministry of Health but rather a function of a lack of information systems that would allow them to provide health specific data. In the first instance, the MOH tried to obtain as detailed a breakdown as possible. In other words, central government entities (other than the MOH), and private providers were asked to identify their health-related revenues by source and classify expenditures by line items and functions. When this was not feasible it was decided to gather data at a more aggregated level such as personnel costs, drugs, and other recurrent costs. The NHA data collection exercise had the positive impact of highlighting information system gaps and increasing the awareness about having the correct information for policy formulation.

Since March 2000, PHR Rwanda has been providing technical assistance to the Directorate of Finance and the Secretary General at the MOH, to help with installation of a management information system and improvement of financial management in the Rwandan health sector (Else, 2000).

3.3 NHA Data, Limitations, and Adjustments

NHA information from entities with low response rates were adjusted or supplemented by additional sources. This section describes by category the adjustment done as well as limitations in the data collection process, and additional sources that have been consulted. A specific section of the NHA questionnaire gathered information on the utilization, cost, and financing of HIV/AIDS-related activities. Due to the limited identification of HIV/AIDS-related activities, providers' data collection in this area has been very limited.

Health Regions Administrative Base:

One of 11 health regions (Cyangugu) failed to return the NHA questionnaire. Therefore, NHA 1998 reports data for 11 health regions by linear extrapolation based on 10 health regions (see analysis in Section 5.1.2.). Health regions did not provide any information on HIV/AIDS-related issues.

Health Districts Administrative Base:

Of the 39 district administrations, 34 have returned their questionnaire and are included in the analysis. Table 5 and Table 6 show the five missing districts are represented by linear extrapolation of the 34 districts, which responded to the questionnaire (see analysis in Section 5.1.3.). None of the districts provided information on HIV/AIDS and related activities.

Table 5. Adjustment of District Administration Revenues in FRw

Funding of Districts	MOH Directorates	MOH Programs	Other Ministries	Total Donor Funding FRw	Capital Revenue	Total Public and Donor Funding
34 districts	137,303,266	24,875,286	27,849,582	597,992,241	17,794	FRw 788,038,169
Adjusted to 39 districts	157,494,923	28,533,416	31,945,109	685,932,276	20,411	**FRw 903,926,135**
Percent	**17%**	**3%**	**4%**	**76%**	**0%**	**100%**

Table 6. Adjustment of District Administration Expenditures in FRw

District expenditures (from FA to Uses)	34 of 39 districts	Linear adjusted to represent 39 districts in NHA report (=100%)	Distribution in percent
Drug expend in public pharmacies	360,990,476	414,077,311	41%
Personnel cost	179,292,325	205,658,843	20%
Other expenditures	343,745,709	394,296,549	39%
Total Expenditure	**884,028,510**	**FRw 1,014,032,703**	**100%**

Referral (Tertiary) Hospitals:

NHA will report on three of four referral hospitals. The fourth referral hospital, Ndera, will be counted for NHA purposes among district hospitals, with which its utilization and financial load is better comparable. Referral hospitals did not report regular utilization and financial information to the MOH in monthly SIS reports. One of the two public referral hospitals (CHK), the church-owned Ndera hospital, and the private hospital returned the questionnaire. The information provided by CHK was supplemented by information contained in the 1998 MOH annual report. The University Hospital in Butare, which is financially supported by the Ministry of Education, did not submit any NHA data; therefore, information from the MOH annual report was used for NHA purposes. Given the large share of public expenditures going to tertiary care facilities, the lack of information systems to track utilization and expenditures is a matter of concern. Such data is essential to improve management, efficiency, and control costs (see analysis in Section 5.7.). Referral hospitals did not provide any NHA information on the use, cost, and financing of HIV/AIDS and related activities. This specific information was gathered in expert interviews and by consulting patient registers at the CHK.

District Hospitals:

In this section, NHA reports data from all 28 district hospitals (10 church-owned and 18 public hospitals) and from one of the four referral hospital (psychiatric hospital Ndera). Financial information from the Ndera hospital is included among the church-owned district hospitals. Church-owned hospitals reported revenue from contracting with employers who covered health services for employees (see analysis in Section 5.7.). District hospitals did not collect any information on HIV/AIDS and related activities.

Ministry of Defense Hospital Kanombe:

The Kanombe hospital in Kigali provides health care services to members of the Rwandan army and their families. This hospital is organizationally and financial dependent on the Ministry of Defense and does not report to the MOH. Therefore, information on the Kanombe hospital is reported separately (see matrix of financing agents to users). Except from expert interview, there was no detailed utilization, cost, and finance information on HIV/AIDS available at the Kanombe hospital.

Pharmacies:

The MOH annual report counted 32 operational district pharmacies in 1998, of which 16 returned the NHA questionnaire. For NHA purpose, responses from the 16 public pharmacies have been linearly extrapolated to reflect activities of 32 pharmacies. Rwanda has to import all pharmaceutical products, as there is no domestic production of drugs. In 1998, the MOH estimated the private pharmacy sector comprised 17 wholesale pharmacies and 300 retail pharmacies. Limited information exists about their activities. NHA collected information from five private pharmacies, which returned the questionnaire. For NHA purpose, CAMERWA will be included in the analysis as a private not-for-profit pharmacy serving the public sector. Public and private pharmacies sell drugs mainly to hospitals, health centers, and international organizations. Drugs are also sold to private households, other private and public pharmacies, and to different MOH activity levels. Annex A, Table A-4 shows extrapolated results for public and private pharmacies (see analysis in Section 5.6). NHA information collected from the public and private pharmacies reflected only 30 percent of the drugs imported through Rwanda custom in 1998 (Table 7). Therefore, NHA drug information was adjusted linearly and supplemented with additional customs data to be in line with the drug information provided by customs. Pharmacies did not provide any pharmaceutical information related to HIV/AIDS drugs sales.

Table 7. Adjustment of Pharmaceuticals According to Customs

Total Drug Expenditures	NHA 1998 data	Rwanda Customs 1998
- in FRw	FRw 2,863,447,382	FRw 7,830,741,050
- in US $	(US$ 9,032,957)	(US$ 24,702,653)
Sector Distribution of:	Generated Revenue	Import Value
	Public Pharmacies : 47 %	Public sector : 68 %
	Private Pharmacies : 53 %	Private sector : 32 %

Source: NHA 1998: Pharmacies, and data from Rwanda Customs

Physicians in Private Clinics:

NHA 1998 questionnaires were sent to 22 physicians in private clinics, of which six returned their questionnaires (27 percent). These six physicians reported 14,106 consultations, which corresponds to 51,722 consultations when extrapolated linearly to 22 private clinics. Private physicians did not reveal the number of patients consulted. Thus, the average number of consultations per patient remains unknown. Table 8 shows utilization and financial activities for six physicians, extrapolated to 22 clinics, which has been integrated in NHA reporting. This extrapolation does not include the amount households spend for health care in private dispensaries (see analysis in Section 5.8).

Table 8. Adjustment of Revenue and Expenditures of Physicians in Private Clinics in 1998

Private Clinics	Value reported by 6 physician clinics (=27%)	Linear adjustment to 22 physician clinics (=100%)
Total number of consultations	**14,106**	**51,722**
Revenue:		
Total patient revenue	FRw 59,241,573	FRw 217,219,101 (86%)
Total contracting revenue	FRw 9,780,000	FRw 35,860,000 (14%)
Total Revenue	**FRw 69,021,573**	**FRw 253,079,101 (100%)**
Of which revenue drug sales	*FRw 14,987,647*	*FRw 54,954,706 (22%)*
Expenditure:		
Personnel costs	FRw 27,175,222	FRw 99,642,481 (46%)
Drug costs	*FRw 8,709,995*	*FRw 31,936,648 (15%)*
Other Expenditures	FRw 23,768,887	FRw 87,152,586 (40%)
Total Expenditure	**FRw 59,654,104**	**FRw 218,731,715 (100%)**

Source: NHA 1998. private practitioners

Health Centers:

According to the SIS, 80 percent of the 346 health centers have filled in and returned their monthly reports during 1998. For NHA analysis, SIS data on health center revenue and expenditure was linear adjusted to 100 percent (Table 9). (See analysis in Section 5.8).

Table 9. Adjustment of Revenue and Expenditures in Health Centers (FRw)

Revenue Categories	Revenue reported by 80% of health centers in SIS reports		Linear adjusted revenue to represent 100% of health centers		% Distribution
Government finances		12,101,128		15,107,526	1.0%
International organizations		102,907,245		128,473,464	8.5%
Patient revenue drug sale	497,053,908		620,541,708	-	45%
Patient revenue other care	596,401,251		744,570,850	-	55%
Total patient revenue		1,093,455,159		1,365,112,558	90.5%
Total Revenue 1998		**1,208,463,532**		**1,508,693,548**	**100.0%**
Expenditures Categories	**Expenditures reported by 80% of health centers in SIS reports**		**Linear adjusted expenditures to represent 100% of health centers in NHA report**		**% Distribution**
Personnel cost	378,957,370		473,105,331		33.3%
Drug cost	409,608,199		511,371,035		35.9%
Other expenditures	351,088,860		438,313,184		30.8%
Total Expenditure 1998	**FRw 1,139,654,429**		**FRw 1,422,789,549**		**100.0%**

Source: SIS 1998

Traditional Healers:

It is unknown how much the population spends on services provided by traditional healers. Health centers report many patients seek care at a health center after having seen a traditional healer. Thus, given the low consultation rate at health centers for curative services, for NHA purposes it will be assumed that about 25 percent of the population sought care at a traditional healer in 1998. Given the population's ability to pay, it will be estimated patients paid a similar average price with the traditional healer as in health centers. Data from a demographic health survey collected in 2000/2001 will provide more insight into the population' health care expenditures. (See analysis in Section 5.8).

Insurance Companies:

NHA contains information as reported from two insurance companies that covered health care services in 1998. Insurance companies reported their total health revenue and expenditures but did not provide detailed amount for each revenue sources, such as health, accident, pension funds. (See analysis in Section 5.5).

4. NHA 1998 Analysis of Sources and Uses of Funds

4.1 Summary Statistics for NHA Rwanda

The main findings for Rwanda's National Health Account for 1998 inferred from the two NHA matrices indicating sources to financing agents and financing agents to service providers, and are summarized below:

Table 10. Summary Statistics NHA 1998

Total Population	7,883,000
Exchange Rate	US$ 1 = FRw 317
Total GDP (nominal) estimated for 1998	FRw 631,680,000,000 (US$ 1,992,681,388)
Total GOR Expenditure and Net Lending	FRw 117,431,000,000 (US$ 370,444,795)
Total Health Expenditures (NHA 1998)	FRw 31,678,228,702 (US$ 99,931,321)
Total per Capita Health Expenditure	FRw 4,019 (US$ 12.68)
Public	FRw 396 (US$ 1.25)
Private	FRw 1,592 (US$ 5.02)
International Sources	FRw 2,030 (US$ 6.40)
Total Health Expenditures as Percent of Nominal GDP	5 %
Public	0.5 %
Private	2 %
International	2.5 %
Percent GOR total expenditure spent on health care	2.5 %
Sources of Funds Distribution:	
Public	9.2 %
Public Firms	0.7 %
Private	39.6 %
International	50.5 %
Uses of Funds:	
Public Facilities	66 %
Church-owned Facilities	10 %
Private Facilities	24 %

The following sections describe and analyze sources of funds, their flow to uses, and where the Rwandan health franc is spent, as identified by NHA 1998 for Rwanda.

4.2 Summary Statistics for NHA AIDS Rwanda

Table 11 is an extension of Table 10 and summarizes NHA AIDS information for Rwanda based on the two AIDS-specific matrices indicating sources to financing agents and financing agents to service providers. Of the total health sources reported in the NHA 1998 source matrix, about 10 percent were spent on prevention and treatment of HIV/AIDS and related expenditures.

Table 11. Summary Statistics for NHA AIDS in Rwanda (Report year in brackets)

Estimated Population Living with AIDS (1999)	400,000 adults	
Prevalence Rate Adults (1999)	11 percent	
Total Health Expenditures (NHA 1998)	FRw 31,678,228,702	(US$ 99,931,321)
Total AIDS-related Health Expenditures	FRw 3,151,394,510	(US$ 9,941,308)
Percent of Total Health Expenditures spent on AIDS	10 %	
Of Public Health Expenditures	1 %	
Of Private Health Expenditures	29 %	
Of Donor Health Expenditures	1 %	
Sources of Funds Distribution:	Total health (NHA98)	AIDS-related funds
Public	10%	1%
Private	40%	93%
International Organizations	50%	6%
Uses of Funds:	Total health (NHA98)	AIDS-related funds
Public Facilities:	66%	66%
Church-owned Facilities:	10%	30%
Private Facilities:	24%	4%
Total AIDS Expenditures as Percent of nominal GDP		0.5%

Source: UNAIDS 2000, and Rwanda NHA 1998

4.3 Sources of Overall Health Funds

As depicted in Figure 2 and described in the source matrix in Table 12, total expenditures for health care in Rwanda in 1998 amounted to almost FRw 32 billions (US$ 100 million) and per capita expenditures to FRw 4,019 (US$ 12.7). The total expenditure on health was 5 percent of GDP, a proportion comparable to other low-income countries. However, half of Rwanda's health expenditures are paid for by international organizations, which is high for a low-income country and places Rwanda in a situation of extreme dependence. Public and private sources account for the remaining 10 and 40 percent of health care financing, respectively.

Figure 2. Sources of Funds NHA Rwanda 1998

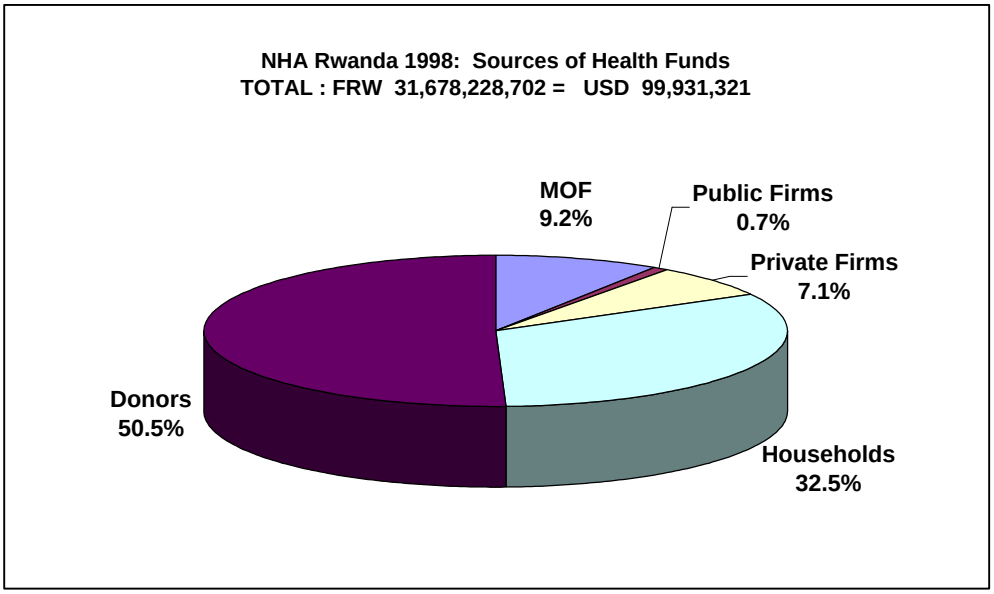


Table 12 compares Rwanda's health care expenditures with its neighboring countries.

Table 12. Health Funding in Rwanda and Other Sub-Saharan Countries

Country (Year)	Per Capita GDP (US$)	Total health expenditure per capita (US$)	Total health expenditure as % of GDP	Public health expenditure as % of total health spending	Private health expenditure as % total health spending	Foreign assistance as % of total health spending
Rwanda (98)	**253**	**12.7**	**5**	**10**	**40**	**50**
Kenya (94)	350	21	7	28	64	8
Uganda (98)	310	15	4.7	18	50	32
Tanzania (98)	210	6	2.8	N/a	N/a	N/a
Zambia (98)	400	16	6	48	37	14

Source: NHA Rwanda 1998, World Development Indicators 2000, supplemented with information collected from other countries at NHA workshop in Capetown in April 2000

As evident in Table 12, Rwanda reports lower overall per capita health expenditure and GDP per capita than its neighboring countries other than Tanzania. The total health expenditure as a percentage of GDP is also one of the lowest in Rwanda. Private spending is significantly higher than public spending in the region, including Rwanda, with the exception of Zambia. The proportion of 50 percent donor assistance of total health spending in Rwanda far exceeds all its neighbors.

The Rwandan government spends considerably less on health care with 2.5 percent of overall government expenditures compared to its neighbor Tanzania with 12.5 percent. Other Sub-Saharan countries spend an average of 5 percent of their total government expenditure on health care. Compounding the situation in Rwanda is the fact that the Ministry of Health has been unable to fully utilize its budget allocation. For example, only 73 percent of the 1998 health budget was actually implemented. Thus, even if the government of Rwanda were to increase the share of its budget going to health there will have to be a corresponding increase in the administrative capacity of the MOH to be able to absorb and effectively utilize these allocations.

In terms of its nominal GDP in 1998, the government of Rwanda contribution to the health sector reflects 0.5 percent, and scores far below other low-income countries, such as Tanzania, which reports a smaller per capita GDP than Rwanda but contributes a larger proportion of GDP to health care (1.3 percent). Rwandan private sources, including private firms and households, pay four times as much (2 percent of GDP) for health care compared to the GOR (0.5 percent of GDP).

In spite of significant donor assistance (both financial and technical), Table 13 reveals Rwanda's neighbors report overall better health outcome indicators, lower fertility rates, and lower mortality rates. Life expectancy also is very low.

Table 13. Health Outcome in Rwanda and Other Sub-Saharan Countries in 1998

Country in 1998	Total Fertility Rate	Under-5 Mortality Rate Male/Female	Infant Mortality Rate	Life Expectancy Male/Female
Rwanda	**6.5**	**213 / 191**	**131**	**39 / 42**
Kenya	4.5	107 / 101	66	51 / 53
Uganda	7.1	181 / 164	107	39 / 40
Tanzania	5.5	138 / 123	82	47 / 49
Sub-Saharan Africa	5.6	147	91	54

Source: Republic of Rwanda, 1999d, WHO, 1999

Poor health outcomes raise the possibility that limited resources are not efficiently and effectively used. This view is strengthened by data that seems to indicate that government resources tend to be used to cover administrative costs at the central level and specialized care, to which only a small group has access, and to a lesser extent to help meet the health needs of the poor. Inefficiencies in resource use has probably contributed to a situation that neither increases access nor improves the health status of those in need.

4.3.1 Sources of AIDS Funds

Compared to the overall health sources reported in NHA, 10 percent was targeted to HIV/AIDS-related activities. While 29 percent of private health expenditures went to AIDS and HIV/AIDS-related treatment, just one percent of public and donor expenditures were devoted to HIV/AIDS-related activities. Whereas donor and government HIV/AIDS expenditures were mainly used for preventive HIV/AIDS activities, household resources were used to pay for treatment of AIDS and opportunistic infections of the 11 percent of the population who is HIV positive. A disproportional 93 percent of total HIV/AIDS resources was contributed by household out-of-pocket spending. Additional resources came from donors (6 percent) and the government (1 percent). Due to the

limited identification of donor spending on HIV/AIDS-related activities, it is likely that HIV/AIDS related donor contributions are underestimated.

Households' high proportional contribution to AIDS, amounting to 29 percent of their total health spending, reveals the strong financial impact of the disease. From 1998 to 2000, households' HIV/AIDS-related expenditures have increased given the fact that for a group of PLWAs more expensive treatments became available, such as antiretroviral therapy in 1999.

4.4 Flow of Overall Health Funds

The following two matrices present Rwanda's flow of health funds, first from sources to financing agents or intermediaries (Table 14) and second from financing agents to service users (Table 15). Financing agents receive money that is used to pay providers of care. Sources usually transfer money to more than one financing agent and occasionally directly to service users. The major financing intermediaries are households (33 percent), donors (22 percent), MOH central level and programs (19 percent), health regions (8 percent), and health districts administrative bases (8 percent). Households transfer most of their money directly to service providers, with only 0.07 percent of household spending going to the Social Insurance *(Caisse Sociale du Rwanda*, CSR) and private insurance companies. There are three major channels of financing, namely:

- From the MOF, derived from general taxation revenue and direct budget support, to other ministries budgets (MOH, MOE, MOJ, MOD)
- From donors to different ministries, to MOH and church-owned NGO facilities, and providers.
- From households to providers and pharmacies through direct out-of-pocket payments and employer contribution in the formal sector. To a limited extent, from households and employers through health insurance companies to providers.

The first channel consists of the 10 percent of the overall health funds, derived from general taxation revenue and direct budget support and distributed through the MOF to the MOH (76 percent), the MOE (10 percent), the MOJ (1 percent) and the MOD (10 percent). While the MOH, MOE, and MOD operate health facilities, the MOJ finances a limited amount of health care used by prisoners in district hospitals. Government resources are mainly used to pay for three publicly owned and operated provider systems: MOH facilities, the university hospital, and the defense ministry hospital Kanombe. MOH facilities and the university hospital (HUB) are supplemented with donor funds and user fees. Access to these services is available to those who are able to pay user fees. Access to services at the military hospital is restricted to members of the Rwandan army and their dependents.

The flow of funds matrix from sources to financing agents (Table 14) indicates the administrative bases of the MOH—programs, regions, and districts—become the largest financing agents and receive 35 percent of all health sources. The second pathway consists of donor support to the Rwandan health sector, which constitutes half of overall health funds. This funding is divided into two main components: 55 percent is channeled to financing agents, mainly to the MOH, and is used to cover administrative costs at the central level, specific health programs, regions, and districts; 43 percent is channeled to providers in the form of direct assistance, without passing, through a financing intermediary. Households and private firms contribute 40 percent of Rwanda's health funding in the form of direct out-of-pocket payments to providers, insurance premiums, and employer contributions

to employees' health care. The fact that only 0.4 percent of household and private firm sources goes to private insurance and the CSR, shows how small the health insurance market is in Rwanda. Thus, virtually all household and employer funds reach providers in form of direct payments without any intermediaries.

Two main weaknesses in the financial reporting system came to light. First is the lack of an adequate accounting and information system, for example in district and hospital pharmacies. Second is a lack of trained manpower to manage the accounting and information system. These inadequacies either resulted in monies received but not spent or spent but not accounted for. The problem is further exacerbated by the fact that often donations by international organizations are in kind, where service providers or the ministries are not informed of the value of the donation or infrastructure investment, and therefore fail to report it in their annual budget. Such discrepancy came to light for the first time with the undertaking of NHA exercise.

Table 14: NHA Matrix Sources to Financing Agents 1998, in '000 FRw and '000 US$

	Sources						
Financing Agents	**MOF**	**Donors**	**Households**	**Public Firms**	**Private Firms**	**Total**	**Percent**
Ministry of Health:							
Central Level	2,197,559	3,770,331	-	-	-	5,967,891	19%
Health Regions	-	2,645,350	-	-	-	2,645,350	8%
Health Districts	-	2,417,081	-	-	-	2,417,081	8%
Other Ministries:							
Ministry of Education	304,346	-	-	-	-	304,346	1%
Ministry of Justice	30,000	-	-	-	-	30,000	0%
Ministry of Defense	300,196	-	-	-	-	300,196	1%
Public Sector:							
Public Firms	31,435	-	-	137,339	-	168,774	1%
CSR Social Insurance	45,564	-	499	24,462	30,523	101,048	0%
Private Sector:							
Churches / Local NGOs		305,851	-	-	-	305,851	1%
Private Insurance		-	6,864	15,776	23,899	46,538	0%
Households out-of-pocket		-	10,302,896	37,320	113	10,340,329	33%
Private Firms		-	-	-	2,187,734	2,187,734	7%
International Donors		6,863,091	-	-	-	6,863,091	22%
Total FR	**2,909,100**	**16,001,705**	**10,310,259**	**214,896**	**2,242,269**	**31,678,229**	**100%**
Percent Distribution	9.3%	50.4%	32.4%	0.8%	7.1%	100.0%	
Total US$	**9,177**	**50,479**	**32,524**	**678**	**7,073**	**99,931**	

Notes on private firms:

FRw	35,860,000	adjusted contract spending with private provider clinic
	22,713,978	spending to private firm owned facility health care
	2,111,492,356	stockholder payments to private hospital
	17,667,246	other direct provider payments

FRw 2,187,733,580 total private firm spending (source) to private firms (FA)

Table 15. NHA Matrix Financing Agents to End Users (FRw) 1998, in '000 FRw and '000 US$

	Financing Agents:														
Uses:	**MoH**	**Health Reg**	**Health Dist**	**MOE**	**MOJ**	**MOD**	**Public Firms**	**CSR**	**NGO / Churches**	**Private Insur**	**Out-of-Pocket HH**	**Private Firms**	**Donor**	**Total**	**Percent**
Public Sector:															
MOH Cent Level	2,025,849													2,025,849	6.4%
H Program	2,414,407													2,414,407	7.6%
H Regions	188,687	2,476,695		871	13,199									2,679,452	8.5%
H Districts	182,269	22,610	1,693,348		7,759									1,905,986	6.0%
Tertiary Hosp	225,018			303,475				51,221			309,005			888,719	2.8%
Tert Hosp Admin	162,179												699,351	861,529	2.7%
District Hosp	176,904		18,651								290,217	2,186	2,408,074	2,896,032	9.1%
Pub H Centers											682,556		1,084,164	1,766,720	5.6%
Pub Pharmac	167,129	9,351	580,940					30,863	87,666		4,167,635		284,945	5,328,530	16.8%
MOD Hospital						300,196								300,196	0.9%
NGO Sector:															
Church Hosp	53,103		4,337					6,695			197,107	1,731	1,171,600	1,434,572	4.5%
Church HC											682,556		944,348	1,626,904	5.1%
Private Sector:															
Treatment Abroad	346,645						25,746	12,269						384,660	1.2%
Hospital	25,000									20,000	409,830	2,125,242	182,493	2,762,565	8.7%
Clinics							25,020			26,538	225,934	35,860	45,623	358,976	1.1%
Emp Facil							118,008					22,714		140,722	0.4%
Priv Phar	702	136,694	119,805						174,354		2,010,376		42,494	2,484,424	7.8%
Trad Healers											1,365,113			1,365,113	4.3%

Unacc. funds					9,042				43,831					52,873	0.2%
TOTAL FR	5,967,891	2,645,350	2,417,081	304,346	30,000	300,196	168,774	101,048	305,851	46,538	10,340,329	2,187,734	6,863,091	31,678,229	100.0%
DISTRIB	18.8%	8.4%	7.6%	1.0%	0.1%	0.9%	0.5%	0.3%	1.0%	0.1%	32.6%	6.9%	21.7%	100.0%	
Total US$	18,826	8,345	7,625	960	95	947	532	319	965	147	32,619	6,901	21,650	99,931	

Notes: NGO = Non-governmental Organization
HH = Household

4.4.1 Flow of AIDS Funds

The following two matrices present Rwanda's flow of HIV/AIDS monies first from sources to financing agents (Table 16), and second from financing agents to service uses (Table 17). Only few financing agents with AIDS-related activities could be identified in NHA 1998; they include the MOH and PNLS. The major financing intermediaries are households' out-of-pocket payments (93.5 percent), followed by the PNLS (4.5 percent). AIDS-specific donor amounts were used to report donations to PNLS and local NGOs. Generally, donors did not identify how much of their overall assistance went to AIDS and HIV/AIDS-related activities, thus, information reported by donors is underestimated.

Table 16. NHA/AIDS Matrix Sources to Financing Agents 1998/9 (in '000 FRw and '000 US$)

	Sources:				
Financing Agents	**MOF**	**Donors**	**Households (1999)**	**Total FRW**	**Percent**
Ministry of Health	27,878			27,878	0.9%
PNLS		141,091		141,091	4.5%
Local NGOs and Churches		35,119		35,119	1.1%
Out-of-pocket Households			2,947,308	2,947,307	93.5%
Total HIV/AIDS Sources: FRw	**27,878**	**176,210**	**2,947,308**	**3,151,395**	**100.0%**
Percent Distribution	0.9%	5.6%	93.5%	100.0%	
Total HIV/AIDS Sources: US$	**88**	**556**	**9,297**	**9,941**	
In percent of total health sources	1.0%	1.1%	28.6%	9.9%	

Table 17 describes the flow of funds from financing agents to service providers. Local NGO's HIV/AIDS monies could not be identified in the financing agents to service uses matrix. PNLS reported expenditures in an amount that exceeded its resources, pointing to some discrepancies.

Table 17. NHA HIV/AIDS Matrix Financing Agents to Uses 1998/9 (in '000 FRw and '000 US$)

	Financing Agents:					
Uses	**MOH**	**PNLS**	**Local NGOs Churches**	**Out-of-Pocket Households (1999)**	**Total FRw**	**Percent**
MOH Programs	27,878	155,905			183,783	5.8%
MOH Ref Hospitals				934,319	934,319	29.6%
MOH HC				945,300	945,300	30.0%
Church HC				945,300	945,300	30.0%
Private Clinics				122,388	122,388	3.9%
Unaccounted funds		-14,814	35,119		20,305	0.6%
Total FRw	**27,878**	**141,091**	**35,119**	**2,947,307**	**3,151,395**	**100.0%**
PERCENT	0.9%	4.5%	1.1%	93.5%	100.0%	
Total US$	**88**	**445**	**111**	**9,297**	**9,941**	

The household contribution of 93.5 percent of all HIV/AIDS money can be identified as treatment of the disease and opportunistic infections. It is assumed that the remaining 6.5 percent contributed by the MOH, PNLS, and local NGOs was predominately used to finance prevention activities and other non-treatment costs. This proportions point to incomplete data from donor sources as well as from financing agents.

4.5 Uses of Overall Health Funds

As Figure 3 indicates, two-thirds of the health expenditures financed care in the public sector, one-fourth in the private sector, and one-tenth in church-owned facilities. While the public sector benefits from two-thirds of the total health care expenditure, it contributes only 10 percent of total health sources. This reflects the importance of foreign assistance and households out-of-pocket payments in the public sector. Patients who are able to pay the higher user fees have access to private facilities.

Figure 3. Use of Health Funds at Sectors

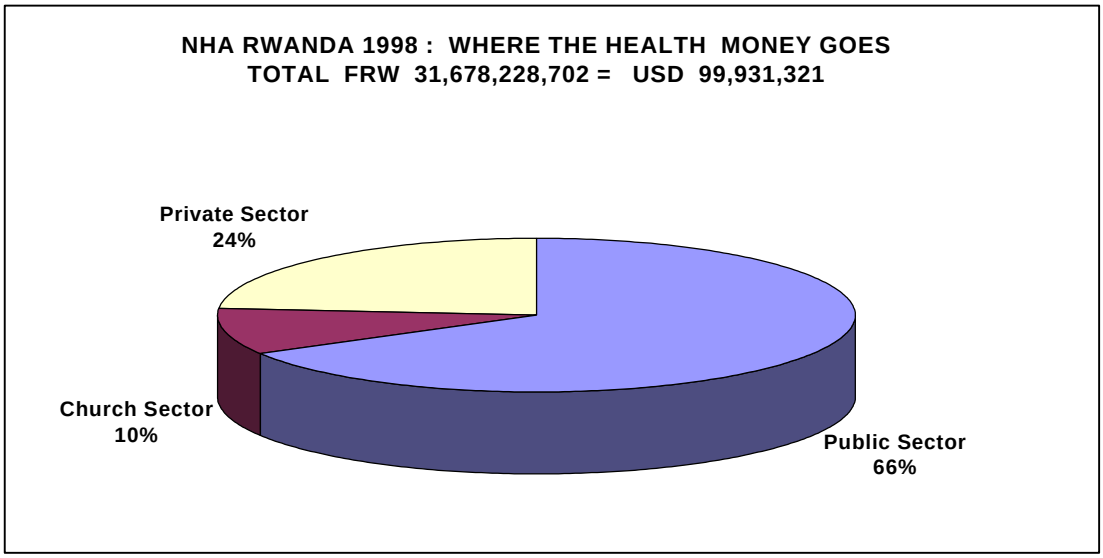


Figure 4 presents a breakdown of health expenditures into functions. Almost one-third of total health spending went to hospital care, namely 15 percent for tertiary private and public care and treatment abroad, and 15 percent for district hospitals. NHA identified that outpatient care accounted for 43 percent of overall health cost, of which 11 percent was spent in public and church-owned health centers, 27 percent in private and public pharmacies and private clinics, and approximately 4 percent with traditional healers. MOH central, programs, and peripheral administrative bases account for 28 percent of the health money identified, which is largely spent on personnel costs working at the central, regional, and district levels as well as in hospitals, district pharmacies, and health centers (see Section 5.1.1).

Figure 4. Use of Health Funds at Functions

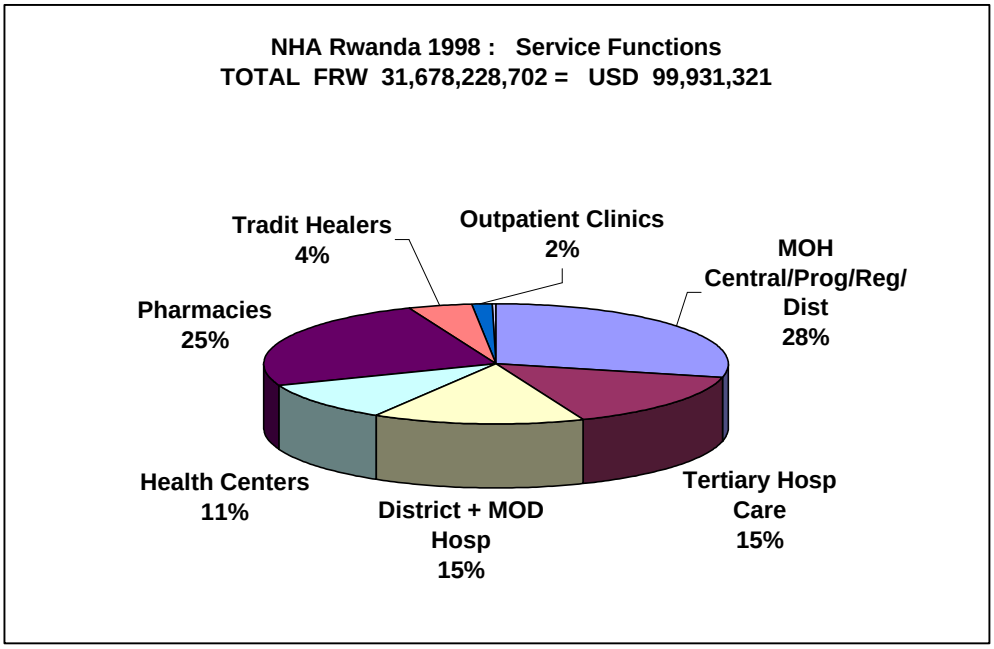
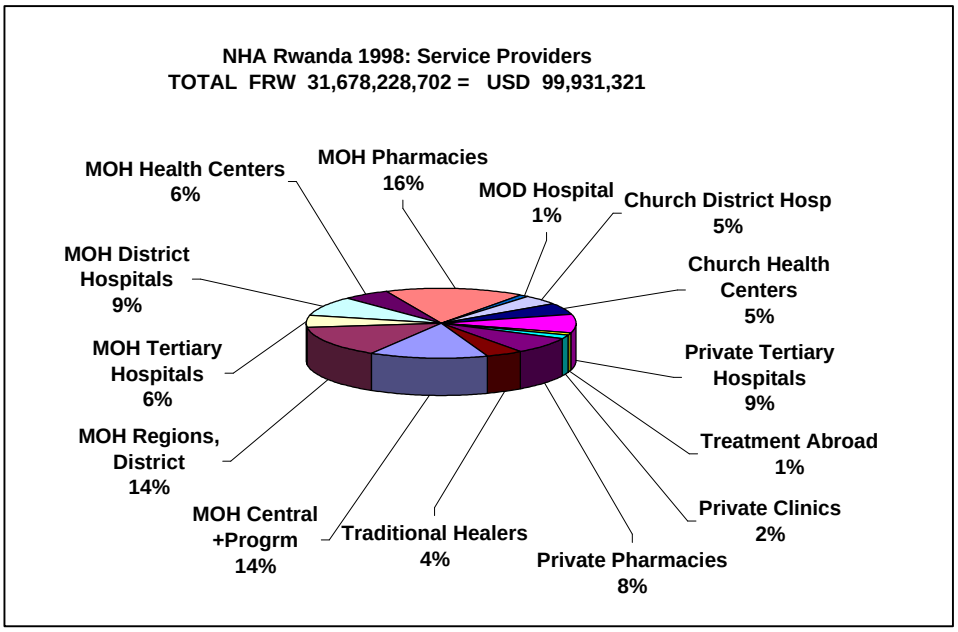


Figure 5 presents a more detailed breakdown of the proportion of health funds by type of provider.

Figure 5. Use of Health Funds at Providers



Compared to the other providers, public pharmacies received the largest proportion of health monies, with 16 percent of overall funds. Almost equally important is the MOH central and program level, where 14 percent of all sources are used, and health regions and districts administrative bases, to which another 14 percent were channeled. Private tertiary health care accounts for a rather large proportion (9 percent) of the total funds, which is mainly due to higher prices. Other important users are the MOH district hospitals (9 percent), followed by private pharmacies where 8 percent of the overall health monies is used.

4.5.1 Uses of AIDS Funds: Prevention and Treatment

Generally, the different sources, financing agents, and users of health monies could not identify in their NHA questionnaires how much they spent on preventive AIDS programs. Households spend FRw 2.9 billion on treatment for AIDS and HIV/AIDS-related diseases, whereas the remaining preventive care costs were financed by public and in international donors. Table 18 reveals 14 percent of all HIV/AIDS monies was used to treat the disease, another 79 percent to treat opportunistic infections, whereas the remaining 6.5 percent was spent on non-treatment related, preventive activities organized by the MOH, PNLS, and local NGOs. It can be assumed that the effective amount spent on preventive care was considerably larger. However, at the time when this report was written, the available financial data situation did not shed any additional light on the use of overall HIV/AIDS monies. Chapter 6 provides more insight on the sources and uses of health monies spent on HIV/AIDS and related activities.

Table 18. Treatment and Preventive Uses of AIDS Funds in 1998/99

Treatment and Non-treatment Uses	FRW	US$	Percent
AIDS treatment (antiretroviral) paid by patients	453,288,000	1,225,130	14.3%
HIV/AIDS related treatment paid by patients	2,494,018,750	8,072,368	79.2%
Non-treatment related costs (preventive use)	204,087,760	643,810	6.5%
Total AIDS/HIV Uses	**3,151,394,510**	**9,941,308**	**100%**

To summarize, the NHA 1998 results show that the Rwandan health sector is largely financed by foreign assistance (50 percent) and by private firms and households' out-of-pocket payments (40 percent), which allows total health spending in percent of GDP to reach comparable levels as in Uganda and other Sub-Saharan countries. The GOR contribution to health in terms of government overall spending (2.5 percent), as well as in terms of total health expenditures (10 percent), remains at a low level. Despite the high level of foreign support the Rwandan population reports poor access to health care and poorer health status than people living in neighboring countries. This highlights potential inequities and inefficiencies in the health system. The private sector accounts for 24 percent of health spending (Figure 3) and serves the approximately 10 percent of the population that is able to pay the high user fees. Public and church-owned health centers serve about 90 percent of the population but benefit from only about 11 percent of all health money. Almost one-third of the health money is spent for care in public and private hospitals. About 10 percent of overall health funds was identified as money spent on HIV/AIDS prevention and treatment. Household's contribution to the overall AIDS monies was exceptionally large with 93 percent of total AIDS funds.

The limited financial data available in the public and private health sector emphasizes the need to develop and implement financial management information systems at all levels of the health sector, with the objective to collect and provide accounting data to document and evaluate the flow of health funds.

The fifth chapter presents a more detailed review of health financing in Rwanda by sources and uses and also analyzes gaps in data, whereas Chapter 6 provides some detailed background on the sources and uses of HIV/AIDS and related activities.

5. Review of Health Financing by Sources and Uses

5.1 Government of Rwanda

Several ministries of the GOR reported activities related to health care. NHA 1998 requested information on health expenditures from the following ministries:

- Ministry of Health, including its directorates and programs (PNLS, PNILT, PNLP) and public sector entities such as the National Population Office (*Office National de la Population*, ONAPO)
- Ministry of Defense, including the Military Hospital in Kanombe
- Ministry of Education, including the Medical Faculty of the Rwanda National University and the University Hospital Butare
- Ministry of Gender, Family and Social Affairs (MINAFASO) includes FARG (Fond pour l'Assistance aux Rescapes du Génocide)
- Ministry of Justice

The MOH and the MOD returned their NHA questionnaire, whereas the MOE, MINAFASO/FARG, and MOJ did not. Disbursement information from the MOF was used to impute financial information for the MOE and MOJ. The MOD reportedly paid for infrastructure and recurrent health costs and salaries of medical army personnel at the Military Hospital Kanombe. The amount that the MOE disbursed for health care to the different health education institutions and the HUB could not be estimated. The MINAFASO is in charge of a fund for genocide survivors that pays for their health care costs. Data for 1998 were not available. The MOJ disbursed FRw 30 million to the MOH districts to pay for hospital care of detainees in health districts.

5.1.1 Ministry of Health

The MOH is the largest financing agent, owner of health facilities and producer of health care. The MOH uses funds received from the MOF and donors to pay for the MOH general overhead costs, disbursements to programs (PNLS, PNILT, PNLP), to health regions and to referral hospitals. A key finding of the NHA exercise was that discrepancies exist between what donors said they had given to the MOH and what the MOH reported as having received from donors. For example, the MOH declared donor revenue for MOH programs to be FRw 3.6 billions (US$ 11.6 million) whereas the amount declared by MOH programs as disbursement to uses constituted only 3 percent of their health funds, leaving 97 percent or US$ 11.2 million as unaccounted funds. The difference is hard to explain. In the sources matrix we have used the amount reported by donors. There are at least three reasons that might explain part of these differences. First, donors might declare MOH as recipient of funds, but in reality disbursement took place at a different level (such as directly with the provider);

second, the MOH financing information system in 1998, did not collect regular accounting information on donor assistance and thus underestimates donor assistance; and third donor assistance often is in kind, such as drugs or infrastructure, and difficult to convert to a monetary value that can be included in the annual accounts. It is important that these differences are reconciled.

Comprehensive and detailed line item accounts of budget and actual total expenditures by the MOH at the central and peripheral levels were not available in 1998. The largest expenditure component at the MOH is personnel costs. Due to the centralized human resource management system, salaries to health sector public employees are paid directly to the employee's bank account. In 1998, the MOH did not report on the distribution of personnel costs between providers and administrative level.

Table 19 shows, MOH declared 42 percent of its overall expenditures as personnel costs accrued at all different levels of the MOH. This amount includes salaries paid to public employees working in health centers, district hospitals, at districts, regions, programs and central administrative bases. Operational costs of the MOH central level and regions account for one-third of MOH expenditures, followed by 13 percent for specialist treatment abroad for 102 patients. The cost borne by MOH for specialist treatment abroad for 102 patients in the overall amount of FRw 346,645,138 (US$ 1 million) corresponds to an average payment per patient of FRw 3,398,482 ($10,721).

Table 19. MOH Expenditures by Line Items in 1998

Cost Categories	Expenditures FRw	in US$	Percent
Personnel cost all administrative and provider levels	1,105,360,879	3,486,943	42%
Drug costs districts	228,782,979	721,713	9%
Medical equipment central & program level	75,444,079	237,994	3%
Functioning central & region level	866,230,499	2,732,588	33%
Treatment abroad for 102 patients	346,645,138	1,093,518	13%
Total MOH Expenditures	**2,622,463,574**	**8,272,756**	**100%**

Source: NHA 1998. Government.

During the year 2000, the MOH with the technical assistance from PHR started to strengthen the accounting and financial systems at the MOH. This activity is funded and supported by USAID and aims to improve the financial management capacity of the MOH including the development and implementation of accounting procedures and manuals which are consistent within different levels of the MOH and compatible with the requirements of the MOF. A reliable and sustainable accounting system within the MOH will have a positive effect on the efficient use of limited government funds, the donor’s willingness to contribute money and the accountability of user fees at the local level. Based on these financial management improvements, it would not be surprising to see the reported resource and output envelope of the health system jump upward (Else, B. 2000).

5.1.2 Health Regions Administrative Base

Table 20 and 21 show funding and expenditures as reported by 10 health regions and extrapolated to 11 regions in 1998. Donors are the most important source of funds for health regions with 57 percent of total funding. However, the amount declared as donor funds received by the 11 health regions reflects 6.2 percent of the amount reported by donors as disbursed (FRw 3,574,443,816). Due to the financial management information procedures in 1998, it is unclear, on

what level the missing donor part has been disbursed. It is possible that donor disbursements took place within the region directly to providers, without declaring the amount on a regional level.

Table 20. Donor and Public Funds to Health Regions (HR) in 1998 (adjusted FRw)

Funding of 11 HR	MOH Director.	MOH Programs	MOJ	MOE	Total Public Funding FRw	Total Donor Funding FRw	Total Public and Donor Funding FRw
Received 11 Regions	89,802,486	64,556,077	14,518,460	958,241	169,835,265	221,851,864	391,687,129
Distribution	23%	16%	4%	0.2%	43%	57%	100%
Spent by GOR and Donors	130,000,000	N/a	N/a	N/a	N/a	3,574,443,816	> 3,704,443,816

Source: NHA 1998: Regions, Government, International Organizations

Table 21 shows health regions spent 90% of their funds at the regional level and just 10% at the district levels. Health regions expenditures were dominated by operating costs (69%), followed by personnel cost (28%). Due to the centralized personnel payment system with employees being paid directly from the central level, it might be possible that the proportion attributed to personnel within a region is higher than the reported 28 percent.

Table 21. Health Region Administrative Base Expenditures in 1998 (adjusted FRw)

Expenditures reported by 11 Health Regions	On Health Region Level	On Health Districts Level	Total Expenditures	Percent
Personnel cost	83,438,831	5,853,733	89,292,564	28%
Drug expenditures	93,500	8,098,926	8,192,426	3%
Operational costs	201,663,251	16,756,355	218,419,606	69%
Total FRw	**285,195,582**	**30,709,014**	**315,904,596**	**100%**
Distribution	**90%**	**10%**	**100%**	

Source: NHA 1998: Regions

There is no comprehensive accounting system by health regions at the central MOH level, which would allow documenting of actual revenue and expenditures by line items on different provider and administrative levels within the region. During the current fiscal year 2000, peripheral budgets are being decentralized from the MOF to administrative prefectures and health regions to finance health activities within the region. However, the current lack of management information systems in regions will make transparency difficult in the flow of health funds within the region.

5.1.3 Health Districts Administrative Base

The 39 health districts are the third administrative level within the MOH, and function as NHA financing agents that receive funds from donors and different ministries and distribute them to cover their administrative and operational costs, as well as those of district pharmacies, hospitals and health centers. Major discrepancies exist between amounts reported by sources as disbursed and by districts as received due to inadequate accounting systems.

Table 22 shows, health districts declared donor revenue in the amount of FRw 685,932,276, whereas donors reported donations to the districts in the amount of FRw 2,417,082,839. Comparing this donor amount with district expenditure points to the assumption that donors have reported expenditures as disbursed on a district administrative level, which might have in fact entered the districts on a provider level, without being declared at the district administrative base or later by providers. According to donor reporting, an average amount of FRw 7,624,867 (US$ 195,509) was disbursed per health district in 1998. Of districts' total health monies, 76 percent was contributed by donors.

Table 22. Donor and Public Funds to Health Districts (HD) in 1998 (FRw)

Funding of Districts	MOH Directorates	MOH Programs	Other Ministries	Total Donor Funding FRw	Capital Revenue	Total Public and Donor Funding
Received by 39 Districts (adj.)	157,494,923	28,533,416	31,945,109	685,932,276	20,411	**FRw 903,926,135**
Distribution	**17%**	**3%**	**4%**	**76%**	**0%**	**100%**
Spent by GOR and Donors	N/a	N/a	N/a	2,417,082,839	-	**> FRw 2,417,082,839**

Source: NHA 1998: Districts, Government, International Organizations

Table 23 shows, personnel costs covered by health districts are rather small (20%), due to the fact that public employees are paid directly by the central level. Also, health facilities use from their revenue form user fees to pay their employees salaries. Districts reported among their major expenses drugs (41%) purchased for the district pharmacies and other facilities, as well as operational costs (39%).

Table 23. Health Districts Administrative Base Adjusted Expenditures in 1998 (FRw)

Expenditure Categories	Adjusted Expenditures	Percent
Personnel cost	205,658,843	20%
Drug expenditures	414,077,311	41%
Operational costs	394,296,549	39%
Total Expenditure FRw	**1,014,032,703**	**100%**

Source: NHA 1998: Districts

In 1998, most health districts did not implement comprehensive accounting procedures, which would have allowed documenting of actual revenue and expenditures by line items on different provider and administrative levels within the district.

5.2 International Organizations

Health care in Rwanda is heavily supported by international aid. Most aid comes in the form of projects, which are separately developed and negotiated between each donor and the Rwandan authorities. In 1998, donors spent 50 million dollars in the Rwandan health sector, which corresponds to half of the overall health sources (see Table 14). The overall influx of donor funding into the country is tracked at the MOF by the Central Project and External Finance Bureau (CEPEX). The

MOH keeps an annual list of donors working in the health sector, their budgets and their total expenditures per administrative and provider level.

The MOH forwarded NHA questionnaires to international organizations working in the health sector to elicit data on donor contributions. However, some of the key donors did not respond to the questionnaire. In the absence of a response from some donors, the MOH donor list was used to estimate the value of their donation (Annex, Table 1). The MOH estimates for these donors in the total amount of $16,571,987 is also included in the following Table 24 showing donors' health spending to the Rwandan health sector as reported in their NHA questionnaires. Thus, according to their information submitted in questionnaires and the information received by the MOH, donors spent overall 50 million dollars on health care in Rwanda.

Table 24 shows donors provided 57 percent of their overall project aid to financing intermediaries, mostly the MOH programs, and health regions. An additional 43 percent was paid directly to uses, among them public and church-owned hospitals and health centers, as well as donor overhead expenditures of 9 percent.

Table 24. Donor Sources to Financing Agents and Uses in 1998

NHA 1998	**Donor Sources:**		
To Financing Agents:	**FRW**	**US$**	**Percent**
MOH Central	944,192,178	2,978,524	6%
MOH Programs	2,826,138,906	8,915,265	18%
MOH Regions	2,645,350,101	8,344,953	17%
MOH Districts	2,417,081,254	7,624,862	15%
Local NGOs and churches	305,851,110	964,830	2%
Total to FA	**9,138,613,549**	**28,828,434**	**57%**
To Users :			
MOH Tertiary Hospitals	699,350,511	2,206,153	4%
MOH District Hosp	2,408,074,060	7,596,448	15%
MOH Health Centers	1,084,163,939	3,420,076	7%
MOH Pharmacies	284,945,052	898,880	2%
Church District Hospitals	1,171,599,883	3,695,899	7%
Church Health Centers	944,348,071	2,979,016	6%
Private Hospitals	182,492,589	575,686	1%
Private Clinics	45,623,147	143,922	0.3%
Private Pharmacies	42,493,925	134,050	0.3%
Total to Users	**6,863,091,177**	**21,650,130**	**43%**
Total Donor Sources	**16,001,704,726**	**50,478,564**	**100%**

Source: NHA sources to financing agents and to uses matrix. International Organizations

Among the largest donors who supported the MOH in 1998 (see Annex Table 2), were the Belgian Cooperation (10.9%), supporting the CHK and three health regions; followed by Norwegian Peoples Aid (NPA). NPA provided direct support to the three health regions Nyagatara, Gysenyi, and Cyangugu, and to the two district hospitals in Cyangugu and Gysenyi, reflecting about 10 percent of the total donor support to the MOH. Other important financial support was provided by the European Union (8.9%); the World Bank Project "Projet Santé Population" (8.2%), which mainly supported the set-up of CAMERWA and delivered medical supply to district hospitals; and by the World Food Program (8.1%).

Table 25 provides information on donor monies received by non-identified donors. Private and public pharmacies, as well as the MOH central level and district hospitals reported donor revenue above the donor amount disbursed reported by donors. These difference constitute 8 percent of total donor spending, and could be caused by accounting systems errors.

Table 25. Health Sources from Non-Identified International Organizations in 1998

Receipts from international organizations which were not identified	TOTAL FRW	TOTAL US$
Public pharmacies	284,945,052	898,880
Private pharmacies	42,493,925	134,050
MOH central level	83,127,297	262,231
MOH referral hospitals	72,090,238	227,414
Public District Hospitals	727,475,181	2,294,874
Total receipts from non-identified donors	**1,210,131,693**	**3,817,450**

Source: NHA 1998. Pharmacies, Government, Hospitals

The current management information system at the MOH does not provide comprehensive information on donor expenditures on different levels and for different line items or functions. When many donors are involved as in the case in Rwanda's health sector, each of them focusing on their own district and project priorities, project coordination can lead to fragmentation and duplication of efforts. This forces the MOH to devote significant amounts of time and effort to coordinate donors' priorities and projects. The Rwandan MOH is therefore increasingly seeing the need to move away from a project approach towards a sector-wide approach in health care financing with long-term strategic development that is integrated into the budgetary process of the country. The MOH and international donors can use results from NHA analysis in conjunction with MTEF to support their decisions when moving towards a sector-wide health care financing approach.

5.3 Private and Public Firms

For NHA summary reporting, results from private firms are combined with household results, whereas public firm sources are counted with government funding. Of the nine privately owned companies that returned NHA questionnaires, eight reported that they cover their employees' health care costs, and they are included in this NHA analysis. In spite of this study's best efforts, little continues to be known about health coverage offered by private companies for their employees. The results presented in this report are perhaps the first time that such information is being presented.

Table 26 presents results reported by eight private and nine public companies. Private companies employ 1,843 staff and spend on average FRw 26,138 (US$ 82.5) per employee on health care. Public companies reported having 33,571 employees and pay on average FRw 7,554 (US$ 23.8) per employee on health care. This amount also covers health care for employees' family members. Assuming an average family counts five members, private firms pay per capita health expenditures in the amount of FRw 5,228 (US$ 16.5) and public firms in the amount of FRw 1,511 (US$ 4.8) for their employees and dependents. Whereas public firm health money is mainly spent in public-owned facilities, private companies spend 85 percent of their health contribution at private sector providers (including employers' own facilities) and 15 percent in form of insurance contributions.

Table 26. Health Coverage in Private and Public Firms in 1998

	8 private companies (private sector)	**9 public companies (government sector)**
Number of permanent staff	1,702	3,921
Number of staff with temporary contracts	140	29,650
Total staff	**1,843**	**33,571**
Fixed amount paid by employer	-	FRw 37,320,000
Contract with private provider	FRw 18,419,383	FRw 25,020,340
Private health insurance employer contribution	FRw 6,925,670	FRw 15,775,578
Private health insurance employee contribution	FRw 113,460	FRw 6,750,293
Care in employer-owned health facility	FRw 22,713,978	FRw 118,007,743
Treatment abroad paid by employer	-	FRw 25,745,848
CSR employer contribution (work-related illness)	-	FRw 24,462,329
CSR employee contribution (work-related illness)	-	FRw 499,231
Total health expenditures	**FRw 48,172,491**	**FRw 253,581,362**
Average health expenditure per employee	**FRw 26,138 ($82.5)**	**FRw 7,554 ($23.8)**
Estimated per capita health spending	**FRw 5,228 ($16.5)**	**FRw 1,511 ($4.8)**

The findings in Table 26 depict the importance of the formal employment sector as a financial supporter of health care in Rwanda. Although private firms target a limited population group, their per capita contribution to health care is more than twice that of international sources and 12 times that of the GOR. Thus, with more people employed in the formal manufacturing and service sector, these beneficiaries' access to quality health services will improve and at the same time additional resources to pay for health care will be mobilized. With a growing private formal sector, the MOH can consider the possibility of contracting risk-sharing plans with private employers and direct a portion of private firms' health spending to the public sector.

5.4 Households

The last household survey in Rwanda was conducted in the 1980s and the last demographic health survey (DHS) in 1992. During the year 2000, a household survey conducted by the Ministry of Planning/UNDP and a DHS by ONAPO/Macro International, collected information on households' socio economic situation in Rwanda. Thus, due to the lack of household expenditure data in 1998, amounts declared as household revenue by insurance companies and service providers were used to

approximate household spending for health care for NHA purposes. It is unknown how much households spend on treatment received from traditional healers; therefore it is assumed that household spent at least as much on traditional healers as they pay for care in health centers. The amount spent on traditional healers could be higher, considering health centers' observations that a large proportion of patients seeks care at the health center only after the treatment received by traditional healers did not show any improvement in patients' health status. Table 27 shows households spend almost all health money in out-of-pocket payments directly with providers, whereas a negligible amount goes to health insurance.

Table 27. Revenue Received from Private Households in 1998 in FRw

1998 Household Payments to:	FRW	US$	Percent
Public and Private Insurance:			
CSR premium revenue	499,231	1,575	0.0%
Private Insurance premium revenue	6,863,753	21,652	0.1%
Total insurance premium paid by households	7,362,984	23,227	0.1%
Public and Private Facilities:			
CHK referral hospital patient revenue	209,005,243	659,323	2.0%
HUB referral hospital estimated patient revenue	100,000,000	315,457	1.0%
Public district hospitals patient revenue	290,216,853	915,511	2.8%
Public health centers	682,556,279	2,153,174	6.6%
Church-owned district hospitals patient revenue	197,106,933	621,788	1.9%
Church-owned health centers	682,556,279	2,153,174	6.6%
Private referral hospital patient revenue	409,829,940	1,292,839	4.0%
Private clinics patient revenue	225,934,121	712,726	2.2%
Estimated patient revenue at traditional healers	1,365,112,558	4,306,349	13.2%
Total health facilities revenue from households	4,162,318,206	13,130,341	40.2%
Private and Public Pharmacies:			
Private pharmacies drug sales to private HH (NHA)	292,600,197	923,029	2.8%
Private pharmacies drug sales to private pharmacies	414,656,316	1,308,064	4.0%
Additional customs value private pharmacies sales to households (customs)	1,303,119,527	4,110,787	12.6%
Public pharmacies drug sales to HH (NHA)	19,913,122	62,817	0.2%
Public pharmacies sales to private pharmacies	47,850,000	150,946	0.5%
Additional customs value public pharmacies sales to households (customs)	4,099,871,774	12,933,349	39.6%
Total Pharmacy Revenue from Households	**6,178,010,936**	**19,488,993**	**59.7%**
Total Household Spending	**10,347,692,126**	**32,642,562**	**100.0%**

Source: NHA Rwanda 1998 sources to uses

Overall, households spent 27 percent of their health money for care at hospitals, clinics, and health centers, and an estimated 13 percent with traditional healers. Of all households' sources, 60 percent were used for drugs in private and public pharmacies. Sector-wise, about 29 percent of household spending goes to private sector providers, 62 percent to public, and 9 percent to church-owned facilities.

Results of Prepayment Schemes in 1999/2000

During 1999, the MOH developed and implemented prepayment schemes in three Rwandan health districts. After the first year, 8 percent of the district population, mainly those active in the agriculture sector, were members of prepayment schemes. First year results revealed per capita contribution to health centers were five times higher for members of prepayment schemes (FRw 580) than non-members (FRw 104) in the district of Byumba. Considering that the majority of outpatient services are provided in health centers, prepayment schemes have proved to be an important instrument to improve patients' access to care and increase health centers productivity and financial resources. With a perspective of making the financing system sustainable in the long run and the likelihood of a decline in donor assistance, the GOR might want to consider a nationwide extension of prepayment schemes and at the same time increase public financial support to health facilities.

Results from HIV/AIDS Household Survey

The MOH in collaboration with PHR Rwanda conducted a household survey of 350 HIV-positive individuals who were either enrolled in a HIV/AIDS support group or sought care at four selected health facilities.[3] The study examines their socio-demographic status, their use of and expenditures on health services, and how these expenditures were financed. For the entire sample the annual per capita rate of health service utilization translated to 10.92 outpatient visits. This compares with a per capita use rate of 0.28 outpatient visits for the general population in 1998. Significant differences emerged in use rates according to gender, marital status, income, and place of residence. Similar differences also emerged in terms of the level of expenditures on health services.

Annual per capita health expenditures by the sero-positive respondents in the sample was US$ 63 which constituted a significant proportion of total household expenditures and was considerably above the average household per capita health expenditure of US$ 2.68 as reported by the overall population. Less than 30 percent of households were able to meet the costs of health services exclusively from their own resources. Most households resorted to multiple ways to pay for health care including receiving assistance, borrowing, and selling assets. Sixty-six percent of households received some kind of assistance, 18 percent had to borrow money to pay for care, and 5 percent had to sell assets. At a minimum, the household survey findings highlight gender, income, and place of residence inequities in the use and expenditures on health services as well as the ability to mobilize non-household resources to pay for care. Clearly, policy interventions are required to address these inequities.

5.5 Health Insurance

The flow of fund matrix in Table 16 shows (in Section 4.4.1) that the two health insurance companies constitute a rather small financing intermediary part in Rwanda. Table 28 shows that insurance companies signed 1,602 contracts in 1998, covering 48,255 insured individuals and their dependents in Rwanda, or 0.6 percent of the total Rwandan population of 7.8 million. However, the target group for these two health insurance companies is the 10 percent of the population that is economically productive in the manufacturing and service sector. Thus, summing the total number of people employed in the public and private sectors, approximately 6 percent of the target group benefits from health insurance. More than half of this population group received coverage through the employer market (59 percent) whereas 39 percent were covered through a government contract. Only

[3] See chapter 6, and Nandakumar, et al. 2000

1 percent of the people with health insurance has individual contracts with a private insurance company.

Table 28. Health Insurance Markets and Beneficiaries in 1998

		Number of People Beneficiaries			
Health Insurance Market	**Contracts**	**Insured**	**Dependents**	**Total Persons**	**Percent**
Employer Market	1,350	26,562	1,169	27,731	59%
Private Market		541	143	684	1%
Government Market	252	18,528	N/a	18,528	39%
Total Coverage	**1,602**	**46,943**	**1,312**	**48,255**	**100%**
Approx. Size of Population Target Group				**788,300**	
Coverage in % of Target Group				**6.1%**	

Source: NHA 1998. Government, public and private firms, insurance companies

Health insurance companies did not report detailed revenue sources per line of business. Therefore, this information was approximated by using health expenditure information as reported by the MOF and public and private firms. The private insurance company covers health and accident financial risk, whereas the public Social Insurance (CSR) only covers work-related health and accident costs for insured formal sector employees. Table 29 shows that, overall, health insurance costs amounted to FRw 147,586,455 in 1998, which corresponds to FRw. 3,144 (US$ 9.9) per insured employee, or FRw 3,058 (US$ 9.6) per beneficiary. Of the overall insurance revenue, 95 percent was generated by the formal employment sector and 5 percent by premiums from private individuals and employees.

Table 29. Health Revenue of Insurance Companies in 1998 (FRw)

	Health Revenue in FRw			
Revenue Sources by Line of Business	**Private Insurance**	**CSR Health Revenue**	**Total Revenue**	**Percent**
Premium spent by MOF for public employees health sector	N/a	45,563,541	45,563,541	31%
Premium spent by public firms	15,775,578	24,462,329	40,237,907	27%
Premium spent by private firms	6,925,670	n/a	6,925,670	5%
Other premium from private firms	16,973,139	30,523,204	47,496,343	32%
Premium received from households	6,863,753	499,231	7,362,984	5%
Total insurance revenue FRw	**46,538,140**	**101,048,305**	**147,586,445**	**100%**

Source: NHA 1998. Government, public and private firms, insurance companies

5.6 Pharmaceutical Sector

Most pharmaceuticals are imported into Rwanda. There is one not-for-profit organization called *Centrale d'Achat des Médicaments Essentiels au Rwanda* that has operated since September 1998 and is licensed to import drugs for the public sector. CAMERWA supplies to the public pharmacies, usually at the district level, and public and church-owned hospitals and health centers, as well as

international organizations supporting the public sector. Five of the 17 private pharmaceutical wholesalers are licensed to import drugs for the private sector.

Table 30 shows that, in 1998, the total expenditure on drugs amounted to FRw 7.8 billion, accounting for one-fourth of the total health care expenditure in Rwanda. This level of expenditure is comparable to most other developing countries. Severe lack of data impedes any attempt to describe the demand and costs of drugs in the Rwandan health sector. The MOH is in the process of implementing a drug information system, which will provide the necessary data in the future.

Table 30. A Comparison of Expenditures on Pharmaceuticals in 1998

Total Drug Expenditures	Rwanda Customs 1998
- in FRw - in US dollars	FRw 7,830,741,050 (US$ 24,702,653)
Percent of Total Health Expenditures	25 %
Percent of GDP	1.24 %
Sector Distribution of:	Import Value Public sector : 68 % Private sector : 32 %

Source: information on drug imports received from Rwanda customs

NHA drug information has been corrected in Annex A, Table A-4 to comply with the drug information as reported by the Rwanda customs service. Based on information from the Rwandan Customs, Table A-4 reveals that the public sector is responsible for distribution of a little over two-thirds (in terms of value) of drugs. The private sector is responsible for the remaining 32 percent. The private sector's sales volume is caused by higher-priced drugs compared to public pharmacies, which mainly sell low-priced generic drugs. Public pharmacies mainly serve public sector providers, accounting for 92 percent of its total sales revenue, followed by international organizations (5 percent) and church-owned facilities (2 percent). Private pharmacies mainly sell to the private sector facilities, accounting for 83 percent of pharmacies total sales, followed by sales to public sector facilities (10 percent) and church-owned facilities (7 percent).

The information that health facilities and pharmacies report for NHA purposes accounts for only one-third of the drug import volume. This emphasizes the need to improve information on drug allocation and distribution to prevent costly waste of drugs at all provider levels. The inability to identify the flow and costs of drugs in the value of US$ 15 million from routine data sources impedes any attempt to describe the demand and costs of drugs in the Rwandan health sector. The MOH in collaboration started to develop and implement a drug information system at the MOH, which will provide information on the availability of and need for drug quantities on pharmaceutical and provider levels. (Else, 2000)

5.7 Hospital Sector

The overview of Rwanda's health system in Table 2 illustrates four referral and 29 district hospitals constitute the hospital sector in 1998. Following is a description of hospitals financial situation, capacity, and utilization.

5.7.1 Sources of Revenue in Referral and District Hospitals

Table 31 depicts revenue sources as reported by one public and one private referral hospital. The CHK also has district hospital functions. Referral hospitals reported considerably more funds in absolute terms from the government and from foreign assistance compared to district hospitals (see Table 27). On a per hospitalized-patient level, the CHK received FRw 10,222 from government contributions, FRw 8,545 from patients' out-of-pocket payments, and FRw 21,959 from international donors.

The number of patients hospitalized at the private hospital could not be estimated. The 83 percent foreign assistance received by the private referral hospital was contributed by South African shareholders. The lack of utilization and financial information at the University Hospital in Butare does not allow any NHA reporting.

Table 31. Sources of Revenue for Referral Hospitals in 1998 (in FRw per hospital)

Referral Hospitals	Public funds per hospital FRw	Private revenue per hospital (patient and other) FRw	Foreign assistance per hospital FRw	Total revenue per hospital in FRw
1 Private Referral Hospital	25,000,000	410,180,480	2,111,492,356	2,546,672,836
Distribution of Sources Private	**1%**	**16%**	**83%**	**100%**
1 Public Referral Hospital CHK	250,018,024	209,005,243	537,103,238	996,126,505
Distribution of Sources Public	**25%**	**21%**	**54%**	**100%**
Number of CHK Patients	24,459	24,459	24,459	
Total sources per CHK patient	FRw 10,222	FRw 8,545	FRw 21,959	

Annex A contains three tables on district hospital revenue from private sources (Table A-5), from public funds (Table A-6), and from donors (Table A-7). This detailed information is summarized in Table 32. On average, a public hospital reported total revenue of FRw 123,019,260, which was slightly more (6 percent) compared to the overall revenue of FRw 115,606,904 of an average church-owned district hospital. Of their total revenue, public district hospitals declared 8 percent from public sources, 13 percent from private households, and 79 percent from donors. Church-owned district hospitals reported similar revenue distributions with 5 percent from the government, 17 percent from private sources, and 78 percent from donors. Also, church-owned hospitals reported revenue from contracting with employers who covered health services for employees. Compared to the overall health sector, district hospitals receive more donor and less government resources (see Annex Table A-5). Translated into per patient spending, district hospitals receive FRw 132 per patient from the government, FRw 289 per patient out-of-pocket spending, and FRw 1,536 per patient from international organizations, considerably less than referral hospitals (Table 26).

Table 32. Sources of Revenue for District Hospitals in 1998 (in FRw per Hospital)

District Hospitals	Public funds per hospital	Private revenue per hospital (patient and other)	Foreign assistance per hospital	Total Revenue per hospital
19 Public District Hospitals	10,292,362	15,389,640	97,337,259	123,019,261
Distribution of Sources	**8%**	**13%**	**79%**	**100%**
10 Church District Hospitals	5,743,910	19,883,780	89,979,214	115,606,904
Distribution of Sources	**5%**	**17%**	**78%**	**100%**
Total Number of Patients	121,935	121,935	121,935	
Total sources per patient	FRw 132	FRw 289	FRw 1,536	

5.7.2 Capacity and Utilization in Referral and District Hospitals

Table 33 presents capacities and patient utilization at referral and district hospitals. Of the overall 5,207 hospital beds in Rwanda, 17 percent are in referral hospitals, 59 percent in public district hospitals, and 24 percent in church-owned district hospitals. The University Hospital in Butare, with a capacity of 373 beds, reported in the MOH Annual Report 6.257 hospitalizations and 13,504 ambulatory care consultations, and an occupancy rate of 46 percent. For NHA purposes, patient revenue at the HUB is assumed to be FRw. 100,000,000. The HUB operates at a considerably lower productivity level than the Central Hospital of Kigali, which counted 515 beds, 90,362 ambulatory consultations, 24,459 hospitalizations, and a 99 percent occupancy rate.

Generally, hospital occupancy rates are low, between 40 to 46 percent, with the exception of the CHK. The average number of patient admissions per day is 10 in public district and slightly more, 14, in church-owned district hospitals. On average, a patient pays more than twice as much to be hospitalized at a public referral hospital compared a district hospital. An important part of the CHK activities are related to secondary care. Also in 1998, the CHK had four different price categories in place, with prices depending on patients' socio-economic status. However, financial results of the distribution of patients into the four categories has not been documented.

Table 33. Hospital Capacity and Utilization in 1998

All Hospitals	No. of Beds	Occupancy Rate	ALOS	No. of Admits	Distribut. % of Beds	Distribut. % of Admiss.
MOH Referral (CHK, HUB)	888	46% - 99%	8.2	30,716	17%	20%
19 Public DH	3,059	40 %	6.4	70,974	59%	46%
10 Church DH	1,260	44 %	4	50,961	24%	33%
Total Hospitals	**5,207**			**152,651**	**100%**	**100%**

Source: Annual report for MOH tertiary, hospital, NHA for public and church-owned hospitals, private sector information are not available

5.8 Outpatient Care

Most patient encounters take place in outpatient care facilities. Table 34 shows that the large majority of patients (88.6 percent) who needed outpatient care went to a health center, whereas another 10 percent went to a hospital. NHA data does not provide any information on how much hospital outpatient care contributed to hospital revenue.

Table 34. Total Outpatient Visits in Hospitals, Health Centers, and Private Clinics

Category	2 MOH Referral Hospitals	19 Public DH	10 Church DH	Health Centers	22 Private Physicians	Total Visits
Average revenue from patients per visit	N/a	N/a	N/a	FRw 482	FRw 4,893	**N/a**
Total number of visits	103,866	94,750	112,009	2,829,838	51,722	**3,192,185**
Distribution % of total outpatient visits	3.3%	3.0%	3.5%	88.6%	1.6%	**100%**

Source: SIS for health centers, NHA for DH and private physicians, Republic of Rwanda. 1999b, for MOH referral hospitals, private hospital information are not available

Health centers receive 11 percent of total health funds (Figure 4 in Section 4.5), and provide 89 percent (Table 34) of total outpatient visits. Health centers provide curative and preventive care services as well as deliveries and hospitalization. User fees are the major source of revenue for health centers. In 1998 health centers had a total of 2,829,838 curative care patient encounters, which corresponds to 34 visits per health center per day.[4] On average, a patient paid FRw 482 per encounter at a health center.

Table 9 (Section 3.3) presented adjusted revenue and expenditure information for health centers according to SIS 1998. Health centers reported 90 percent of their revenue was generated by direct out-of-pocket payments by patients, international organizations contributed 8.5 percent, and the government 1 percent. Health centers might have underestimated the donor and government contributions, as they do not include drug donations and salaries of public paid civil servants in their accounting systems. Health centers' expenditures are equally distributed with one-third on salaries, one-third on drugs and the remaining third on other operational expenditures.

Few patients reported an outpatient visit to church-owned district hospitals (3.5 percent), referral hospitals (3.3 percent), public district hospitals (3 percent), or private clinics (1.6 percent). Adjusted results for 22 physicians in private practice account for overall 51,722 patient contacts per year, which corresponds to 9.4 consultations per physician per day.[5] Overall 22 physicians in private practice reported total extrapolated patient revenue of FRw 253,079,101. This corresponds to an average of FRw 4,893 per consultation, of which 22 percent was generated by drug sales. For NHA purposes it is assumed that the same proportion of the population sought care with traditional healers as with health centers. People spent a similar amount of money as in health centers, namely FRw 1,365,112,558, with traditional healers or about FRw 500 per client contact. This amount could have

[4] This result of health center consultations per day is based on 330 health centers and 250 work-days.
[5] The number of private physician consultations per day is based on 22 physicians and 250 work-days.

been significantly more as clients usually pay in kind. Information on traditional healers will have to be updated with data currently collected by the household survey, which should be available in 2001.

5.9 Discussion of Results

This NHA analysis points to several questions that need to be addressed in the future. The review of health financing by sources and uses as depicted in this chapter point to the following key issues:

- A main constraint in the interpretation of results reported by NHA is the limited availability of valid and accurate accounting data, as well as the lack of comprehensive and adequate financial and information systems and therefore discrepancies in data especially for donor contributions.
- There is lack of trained personnel to manage financial and information systems.
- Contributions of international organizations, which amount to 50 percent of total health sector funding, are unsustainable.
- To increase the amount of targeted government sources to health care to at least the same level, as households' per capita spending is dominating.
- Although the MOH plays a rather small part in financing health care, it becomes through donor funding the largest financing agent as well as owner of facilities and producer of health care services.
- There is inequity in access to health care with the MOH, which spends most for specialized treatment abroad for a selected number of 102 patients with FRw 3,398,482 (US$ 10,721) per patient.
- Compared to this per patient amount, government contributions on a per patient level in referral and district hospitals as well as in health centers becomes insignificant, and raises concerns about efficiency and equity in the allocation of public funds.
- The population pays for health care in the form of patients' out-of-pocket payments.
- There are low occupancy rates in the hospital and low consultation rates in health centers.
- Insurance companies' role as financing intermediaries is negligible, covering approximately 0.6 percent of the total population.
- Private firms contribute a significant proportion of health care expenditure for their employees and their family members. Thus, funds generated from the formal employment sector could be reorganized in form of prepayment schemes with health care facilities who provide quality care.

The comprehensive and detailed documentation of line item expenditure and revenue information on all administrative, provider, and assistance levels in the health sector will allow policymakers decisions to be based on information on the overall availability of and need for the limited health money in Rwanda's health sector. The following chapter will address some of the questions raised in this first NHA analysis and lead to recommendations to the GOR and international organizations in the final chapter.

6. Review of AIDS Financing by Sources and Uses

Whereas Chapter 4 presented the summary statistics for NHA AIDS in Rwanda and the sources and uses of AIDS funds, this chapter provides a detailed review of HIV/AIDS financing in Rwanda by sources and uses.

6.1 Government of Rwanda

6.1.1 Ministry of Health and Its Programs

Table 16 in section 4.4.1 shows the NHA/AIDS matrix on sources to financing agents. Overall, about US$ 10 million of the total health monies were devoted to AIDS and related activities. Table 17 in the same section then provides a breakdown on flow of HIV/AIDS funds from financing agents to uses, which include MOH central programs and public, church-owned, and private providers. The MOH and the national AIDS program PNLS, receive funding from the Ministry of Finance and donors. While the MOH uses AIDS monies mainly to pay for personnel and operational supplies related to HIV/AIDS, more organizational costs occur to the PNLS. Table 35 shows functional spending as reported by the two public financing intermediaries, the MOH and PNLS. The largest HIV/AIDS related expenditure component was travel costs (27 percent) reported by PNLS, followed by operational maintenance (23 percent), office supply (19 percent), personnel (16 percent), and other operational supplies (15 percent). According to their NHA questionnaires, the two agents did not finance any drugs to treat AIDS and HIV/AIDS-related diseases in 1998, which would have facilitated access to care for sero-positive patients.

Table 35. AIDS Spending as Reported by Financing Agents in 1998

	Financing Agents:				
EXPENDITURE FUNCTIONS	**MOH**	**PNLS**	**TOTAL FRW**	**TOTAL US$**	**PERCENT**
Personnel cost	13,201,298	16,942,346	**30,143,644**	**95,090**	16%
Travel		49,573,719	**49,573,719**	**156,384**	27%
Drugs		-	**0**	**-**	0%
Operational supplies	14,676,306	13,118,093	**27,794,399**	**87,679**	15%
Operational maintenance		41,543,237	**41,543,237**	**131,051**	23%
Office supply		34,727,864	**34,727,864**	**109,552**	19%
TOTAL FRW	**27,877,604**	**155,905,259**	**183,782,863**	**579,757**	**100%**
TOTAL US$	**87,942**	**491,815**	**579,757**		

Source: NHA 1998, government

Differences occur when comparing amounts spent as reported by the financing agent PNLS in Figure ES 3 with the corresponding amounts spent as reported by donors (see Table ES 5). These differences point to the importance to improve financial reporting systems on all levels to better allocate scarce resources and improve AIDS program performance across all levels.

6.2 International Organizations

Table 16 in Section 4.4.1 showed that donors spent overall FRw 176 million on HIV/AIDS, of which 80 percent was donated to PNLS and 20 percent to local NGOs and churches. Four donors reported the detailed amounts given to support the national anti-AIDS program PNLS, which was almost a half a million dollars in 1998 (Table 36).

Table 36. Donor AIDS Sources to PNLS in 1998

PNLS	Total FRW	Total US$
WHO	59,999,858	189,274
Belgian Cooperation	43,114,536	136,008
FNUAP	34,806,600	109,800
PSI	3,170,000	10,000
TOTAL	**141,090,994**	**445,082**

Source: NHA 1998, international organizations

Table 37 shows the four donors' sources by functions. Almost half of donor monies (43 percent), that went to PNLS was targeted to finance the program's administrative support. Another 27 percent was used for PNLS salaries. According to their NHA 1998 information, donors hardly support PNLS with drugs and consumables. Thus, at least 98 percent of this donor monies was used to finance prevention activities.

Table 37. Donor AIDS Support to PNLS by Functions in 1998

Functions	Total FRW	Total US$	Percent
Administrative Support	59,999,858	189,274	43%
Salary	37,662,453	118,809	27%
Training	3,170,000	10,000	2%
Drugs	1,141,200	3,600	1%
Consumable Supplies	2,092,200	6,600	1%
Maintenance	317,000	1,000	0%
Building	6,974,000	22,000	5%
Equipment	2,982,336	9,408	2%
Other	26,751,947	84,391	19%
Total	**141,090,994**	**445,082**	**100%**

Source: NHA 1998, International Organizations

A clear understanding for AIDS spending in Rwanda will only be achieved by increasing financial management capacity, which spans different ministries. Financial information received by donors is incomplete, as donors tended not to specify AIDS and HIV-related spending. Thus, it must be assumed that a significant proportion of donors' AIDS monies given to Rwanda's national AIDS-program were not accounted for in the 1998 NHA HIV/AIDS report.

6.3 Households with Sero-positive Individuals

Even if an AIDS patient is hospitalized once only per year, she or he will very likely still have to pay for outpatient health care expenditures in case of illness during the non-hospitalized time period. Rwanda's average consultation rate in health centers was 0.28 consultation per person per year in 1998. Presumed sero-positive members of the society report more health center consultations for treatment of their opportunistic infections, which results in about 10 consultations per patient per year (Nandakumar et al., 2000). The few AIDS patients with access to sophisticated treatment are likely to seek care in the more expensive private sector and in referral hospitals, where high-priced antiretroviral therapy is administered by trained physicians. This will cause overall health spending from households to increase with more PLWAs and better access to expensive therapies.

Table 16 in section 4.4.1 shows the proportion of health spending by PLWAs corresponds to 29 percent of all 1998 household health expenditures as reported in NHA. The following sections describe patients' inpatient and outpatient spending in more detail. Table 44 at the end of this chapter summarizes estimated household expenditures by their socioeconomic classification as first presented in Table 3 (Section 2.5).

6.3.1 Hospital Treatment and Cost of Sero-Positive Patients in Rwanda

Hospitals did not report any information on HIV-specific treatment and finances, although all hospitals in Rwanda provide care to PLWAs with opportunistic infections. Testing is not done on a regular basis, because of three main reasons: first, tests are not available in all facilities, second, poor patients do not have the financial resources to pay the out-of-pocket fee for the test, and third, testing is widely considered as not necessary given that a test and a positive result will not automatically lead to treatment. Thus, the majority of PLWAs hospitalized are assumed to be positive because of their overall health situation but are not necessarily confirmed by an HIV-test. At the Central Hospital of Kigali, three physicians specialized in AIDS took care of sero-positive patients in 1999. The physician in charge of sero-positive patients was interviewed, and patient registers of confirmed and assumed sero-positive patients were consulted to validate expert information.

Table 38 shows PLWAs at the CHK are medically classified into four categories, depending on the disease progression. Patients classified in the third and fourth disease category suffer from opportunistic infections, and are more likely to be hospitalized.

Table 38. Medical Classification of PLWAs at the CHK

Category	Symptoms	Place of Treatment
1)	Asymptomatic	None
2)	Weight loss < 10% of body weight, respiratory infections, etc.	Outpatient
3)	Weight loss > 10% of body weight, diarrhea > 1 month, fever > 1 month, candidose, tuberculosis, etc.	Out- and inpatient
4)	Taxoplasmose cerebrale, pneumopathies, herpes, mycosis, candidosis, tuberculosis, lymphome, Kaposi sarcoma, encephalopathie, etc.	Out- and inpatient

Source: Interview with Dr. Abel Kagame, CHK, June 2000

Overall, the CHK has about 185,400 hospital nights available per year. In 1998, the CHK counted overall 515 beds, 24,459 hospitalizations, a 99 percent occupation rate, and 90,362 ambulatory consultations. In 1999, the CHK hospitalized approximately 800 patients in AIDS progression category 3, and about 1,700 in category 4, for a total of approximately 125,000 nights hospitalized and an occupancy rate of 67 percent of the overall hospital bed capacity (see Table 39). About 13 percent of the 800 patients in category 3 died during their hospital stay, and 18 percent among the 1,700 patients in category 4.

Table 39. Patient Load of Sero-positive Patients at CHK in 1999

Disease Category	Nbr of patients	ALOS	Nights hospitalized	% of available nights occupied by AIDS patients
3)	800	30	24,000	13%
4)	1,700	60	102,000	55%
TOTAL	**2,500**	**50**	**125,000**	**67%**

Source: Interview with Dr. Abel Kagame, CHK, June 2000

The CHK classifies patients into four price categories according to their socioeconomic background. When applying the PLWA classification to the socioeconomic groups (see Table 3 in section 2.5), it can be assumed that of the hospital's annual 2,500 AIDS hospitalizations, 25 (1 percent) are classified in highest socio-economic group, 11 percent in the second group (middle class), and 88 percent in the third and fourth groups (poor). The following tables describe patients' treatment, unit prices and total out-of-pocket health expenditure for a hospital stay when the patients are in advanced in disease categories 3 and 4. Patients in these categories are very likely diagnosed with tuberculosis and need to be hospitalized for about 50 days.

Table 40 shows few patients are able to pay the higher prices to be hospitalized in the CHK's private department, where an overnight stay in a single room costs FRw 10,000 and in a two-bed room FRw 5,000. For NHA purposes it was assumed that overall 25 high-income group AIDS patients access the hospital private department in 1999. Of them, 10 had a single and 15 a two-bed room, resulting into per patient payments of FRw 500,000 for 50 nights (at FRw 10,000 per night), and FRw 250,000 (at FRw 5,000 per night), respectively. High-income patients receive more extensive radiology, laboratory, and drugs at higher prices, resulting in higher total spending, compared to middle-income and poor patients. Costs reported in Table 40 do not include expenditure for antiretroviral therapy for those patients who receive this treatment. (This cost will be accounted for in Table 43 in Section 6.3.3, on expenditures for outpatient care.)

Table 40. Treatment and Average Cost of Hospitalized High-income AIDS Patients at CHK

Inpatient Service	Unit costs in Single Room	Unit Costs in Two-bed Room	Total Payments from 25 Patients per Year
Number of patients per year	10 patients	15 patients	From 25 patients
Overnight stay 50 nights	FRw 10,000 per night	FRw 5,000 per night	FRw 8,750,000
Drugs (excl. triple therapy)	100,000 per stay	100,000 per stay	FRw 2,500,000
Radiology image	FRw 5,000 per stay	FRw 5,000 per stay	FRw 125,000
Total cost for hospital stay	FRw 605,000 per patient per stay	FRw 355,000 per patient per stay	FRw 11,375,000 for 25 patients

Source: Price information from CHK accounting department, July 2000

Table 41 shows, on average, a middle-income patient will pay about FRw 86,850 (US$ 234) for a 50-day hospitalization at a referral hospital. During the hospital stay, blood usually is taken once and sputum three times. Patients hospitalized are X-rayed once. There is a daily physician consultation of about seven minutes per visit, and a nurse will spend about 40 minutes per day per sero-positive patient. Drug therapy depends on patients' need, ability to pay, and access to financial support systems. Usually patients receive antibiotic treatment for one week, paracetamol, 1-1/2 liter of perfusion per day, and other drugs.

Table 41. Treatment and Average Cost of Hospitalization Middle-income AIDS Patient in CHK

Services per Hospitalization	Use per Hospitalization	Unit Cost	Total Cost per Hospitalization
Overnight stays	50	FRw 500	FRw 25,000
Radiology image	1	FRw 5,000	FRw 5,000
Physician consultation 7 min	50	FRw 33	FRw 1,650
Nurse time 40 min	50	FRw 104	FRw 5,200
Drug treatment	Avg. estimate		FRw 50,000
Total cost for hospital stay			FRw 86,850 per patient

Source: Interview with Dr. Abel Kagame, CHK, June 2000

Poor patients receive minimal treatment. The hospital's social department financially supports poor patients' treatment bill. During the month of July 1999, overall 97 patients were counted in one of the hospital's internal medicine wards, where lowest-price paying patients are hospitalized. Of these 97 patients, 60 received an HIV test (62 percent), and among them, 27 patients (45 percent) tested positive. The out-of-pocket amount for poor patients is FRw 3,000 for 10 hospital days including drugs, diagnostic tests and care. The majority of poor contribute on average FRw 15,000 for drugs and their 50 days hospital stay. The remaining costs of about FRw 70,000 (US$ 189) are covered by the hospital with donor funds.

Table 42. Total Patient Revenue from Hospitalized Patients in 1999

Socioeconomic Category	Number of patients	Avg. Patient payment per hospitalization	Total patient payments for hospitalization FRW	Total patient payments for hospitalization US$
1) High	25	FRw 455,000	FRw 11,375,000	US$ 35,883
2) Middle	275	FRw 86,850	FRw 23,883,750	US$ 75,343
3) Poor	2,200	FRw 15,000	FRw 33,000,000	US$ 104,101
Total	2,500		FRw 68,258,750	US$ 215,327

Once discharged, patients will continue to have above-average out-of-pocket health care costs when using more frequently outpatient services.

6.3.2 Outpatient AIDS Care for Symptoms and Opportunistic Infections

Table 3 (Section 2.5) indicated that, due to patients' out-of-pocket payments, patients from different socioeconomic backgrounds have access to different outpatient care services. A more detailed household survey describes use and expenditures for outpatient care for low-income groups (Nandakumar et al., 2000). Household survey results reveal PLWA's in the second highest expenditure quintiles reported annual per capita expenditures of FRw 13,379 for outpatient care. This per capita value will be used as an estimate for the middle-income group's per capita outpatient spending in Table 44, group 2. Similarly, for group 3, household surveys lowest expenditure quintiles information will be used to determine annual per capita outpatient spending in Table 44, group 3. This amount was FRw 6,302 per capita per year. The next section investigates patients' out-of-pocket costs when receiving anti-retroviral drug therapy.

6.3.3 Anti-retroviral Drug Treatment

Anti-retroviral drug therapy was introduced in Rwanda in 1999. Patients' access to treatment is defined by their ability to pay high out-of-pocket costs, which limits access to AIDS treatment to the wealthy patients. Since January 1999, 202 PLWAs have received anti-retroviral therapy. Based on these 202 PLWAs, Table 43 shows that, over a one-year time span, a patient receiving anti-retroviral therapy who is not hospitalized and sees his physician monthly will spend overall FRw 2,244,000 (US$ 6,065) on treatment. In addition to drug costs, patients pay for laboratory tests mounting to FRw 72,000 per patient for a period of six months, and about FRw 3,000 per consultation in private practice.

Table 43. Out-of-pocket Expenditure for Anti-retroviral Therapy in 1999-2000

Annual Antiretroviral Treatment	Out-of-pocket costs per patient per year FRW	Total Out-of-Pocket Costs for 202 PWLA per year in FRW	Total Out-of-Pocket Costs for 202 PWLA per year in US$	Percent distribution
Antiretroviral drug	FRw 2,064,000	FRw 416,928,000	US$ 1,126,756	92%
Laboratory tests	FRw 144,000	FRw 29,088,000	US$ 78,578	6%
Physician consultations	FRw 36,000	FRw 7,272,000	US$ 19,594	2%
Total Treatment Cost	FRw 2,244,000	FRw 453,288,000	US$ 1,225,130	100%

Source: Interview with Dr. Abel Kagame, CHK, June 2000; exchange rate : US$ 1 = FRw 370 in mid-year 2000

Of these 202 PLWA with access to anti-retroviral therapy, 148 received their drugs at public referral hospitals (73 percent), whereas the remaining 54 were treated in private physician clinics (27 percent). Thus, of the overall patient out-of-pocket amount of FRw 453,288,000 (US$ 1,225,130) shown in Table 43, 73 percent was spent in public referral hospitals, (FRw 330,900,240 or US$ 894,345); the remaining 27 percent (FRw 122,387,760 or US$ 330,785) was paid to to private practitioners for anti-retroviral drug treatment.

6.3.4 HIV/AIDS Information from Private Practitioners

Of overall 22 physicians, six returned the 1998 NHA questionnaire. Among them, two offer HIV testing and four responded they have a counseling service available for sero-positive patients. In 1998, three physicians saw 213 sero-positive patients in 991 consultations, resulting in an average of 4.6 consultations per patient. Two of the three physicians, estimated a revenue of FRw 304,000 from treating 75 sero-positive patients in 245 consultations, resulting in an average revenue of FRw 4,053 (US$ 12.8) per patient or FRw 1,241 (US$ 3.9) per consultation. This revenue comprised two components, namely 24 percent from drug sales and 76 percent from laboratory services. Financial information of the two private practitioners is incorporated in the overall outpatient per capita estimate for group 2 in Table 44.

Private practitioners generally reported difficulties in identifying utilization, cost, and financing information for sero-positive patients, and indicated the following reasons: assumed HIV-positive patients are not necessarily confirmed, their HIV-related treatment and financial result is not reported separately, and private practitioners do not submit any monthly epidemiological reports to the MOH.

6.3.5 HIV/AIDS Summary on Households' Out-of-Pocket Spending

Table 44 summarizes household spending according to PLWAs' socioeconomic background and place of treatment as described in Table 3 and in the preceding Tables 40-43. Of the overall US$ 9 million spent by sero-positive patients, 64 percent went to outpatient care in public and church-owned health centers, where approximately 300,000 low-income sero-positive patients seek care. Another 18 percent of patients' out-of-pocket payments was spent by an estimated number of 40,000 middle-income group sero-positive patients for outpatient care in referral hospitals and private practitioners' clinics. Approximately 15 percent of all sero-positive patients' out-of-pocket payments came from the 202 high-income AIDS patients who have access to anti-retroviral drugs in outpatient settings. This

small group comprises 0.05 percent of the 400,000 PLWAs in Rwanda. The number of patients with access to physician treatment of AIDS and opportunistic infections will remain small as long as these services have to be paid for by patients' out-of-pocket contributions and are not covered by a health insurance system.

Table 44. Out-of-pocket Expenditure for AIDS Patients

Group	Place of Treatment	Number of PLWAs	% of PLWAs who use treatment	Average Price paid per Patient per Year FRw	Total Out-of-Pocket Payment by PLWAs per Year FRw	In Percent of Total Patient Spending
1.	**Outpatient**: Physicians in referral hospitals and private sector.	About 202 patients (0.05% of all PLWA)	100%	FRw 2,244,000 (US$ 7,079) (see Table 43)	FRw 453,288,000 (US$ 1,225,13)	15.4%
	Inpatient: Physicians in referral hospitals and private sector.	About 202 patients (0.05% of all PLWA)	25 of 202 patients (12%)	FRw 455,000 (US$ 1,435) per hospitalization (see Table 40)	FRw 11,375,000 (US$ 35,883)	0.4%
2.	**Outpatient**: Physicians in referral hospitals and private sector	About 40,000 patients (10% of all PLWA)	100%	FRw 13,379 (US$ 42) annual per capita spending (see 6.3.2)	FRw 535,160,000 (US$ 1,688,202)	18.2%
	Inpatient: Physicians in referral hospitals and private sector.	About 40,000 patients (10% of all PLWA)	275 of 40,000 patients (0.7%)	FRw 86,850 (US$ 274) per hospitalization (see Table 41)	FRw 23,883,750 (US$ 75,343)	0.8%
3.	**Outpatient**: Nurses in public and church-owned health centers.	About 300,000 PLWA (about 75% of all PLWA)	100%	FRw 6,302 (US$ 20) annual per capita spending (see 6.3.2.)	FRw 1,890,600,000 (US$ 5,964,038)	64.1%
	Inpatient: Physicians in district and referral hospitals	About 300,000 PLWA (about 75% of all PLWA)	2,200 of 300,000 patients (0.7%)	FRw 15,000 (US$ 47) (see Table 42)	FRw 33,000,000 (US$ 104,101)	1.1%
4.	Traditional healers	Unknown number, estimate of +50,000 PLWA	Not known	Not known	Not Known	
			TOTAL Patient Revenue		**FRw 2,947,306,750 (US$ 9,297,498**)	**100%**

6.4 Discussion of AIDS/NHA Results

NHA points to several weaknesses in equity and efficiency of HIV/AIDS funding that need to be improved, considering 400,000 people are living with HIV in Rwanda.

- Approximately 10 percent of all health monies were used in 1999 to target prevention and treatment of HIV by which at least 11 percent of the adult population is affected.

- Of the total AIDS/HIV funds that entered the health sector in 1999, approximately 6.5 percent went to non-treatment-related and prevention activities, 14.3 percent was used for antiretroviral treatment by 202 patients, while the remaining 79 percent was used to pay for care of symptoms and infections caused by the virus to about 400,000 patients.

- Households contribution to total HIV/AIDS sources is disproportional high, and reflected 93.5 percent of all AIDS funds in 1999. Donors contributed 5.6 and the GOR 1 percent.

- In the absence of insurance coverage for treatment of symptoms and opportunistic infections caused by the virus, households' access to care is determined by their ability to pay user fees, which limits access to treatment to the 202 PLWAs of the highest-income groups in 1999.

- The availability of HIV/AIDS utilization and finance data is limited by the following two facts:

  - Few patients have access to HIV testing, and few health facilities inform patients about the test result, and collect HIV/AIDS-related utilization and financial information in an accurate documentation system.

  - There is a lack of a comprehensive financial management system within the MOH and its programs that would allow planning, management, and evaluation of financial resources invested in alleviating the HIV/AIDS situation in Rwanda.

7. NHA Findings and Policy Implications

Rwanda's first National Health Accounts exercise for the year 1998 has policy implications at two levels. The first level is derived from the lessons learned during the overall NHA development and implementation process, where three main constraints were encountered (see Section 7.1). Failure to address these constraints can jeopardize the future availability of accurate financial and utilization data in preparation for the next NHA round, as well as for other strategic financial and policy analysis and planning at the MOH, for example, using NHA data for MTEF and a potential sector-wide approach (SWAP).

On a second level, NHA data aims to provide insight into achievements of the Rwandan health sector, and suggest specific policy implications. The primary goal of the Rwandan health system is to provide better health. This objective is followed by the quest for a fair system that responds equally to everyone, without discrimination or differences in treatment. Thus, assessing how well the Rwandan health system meets these objectives requires first determining what has been accomplished with the limited resources available, and, second, comparing the Rwandan health system's achievements with what it should be able to accomplish (WHO, 2000). In this regard, NHA findings point to the following three concerns.

- The Rwandan health sector is overly dependent on external donor assistance, which is not sustainable over the long term (Section 7.2);
- High household out-of-pocket costs impacts access to care for 70 percent of the population that is living in poverty (Sections 7.3 and 7.4), and
- The Rwandan health system can improve the return on its investments in health (Section 7.5).

NHA data better equips Rwanda to document results achieved by the health system over a period of time and compare Rwanda with other countries, as well as to suggest objectives for the rolling Medium Term Expenditure Frameworks effort.

7.1 Improve Financial Collection and Reporting Process

Analysis is only as good as the information available. That is, additional value can be added to the NHA approach and other strategic analysis and planning at the MOH by improving the availability of valid and reliable accounting data on all administrative and provider levels within the health sector. Specifically the current information situation can be improved by addressing three constraints identified during this NHA implementation process, namely:

- The lack of a well designed and comprehensive accounting and information system;
- The lack of trained manpower capable of establishing a sound data collection mechanism and conducting the analysis; and

- The lack of consistent, and at times disconnected reporting of financial transactions between sources, financing agents and uses.

Addressing these constraints will promote the development and implementation of a management information system that responds to the specific information needs of the Ministry of Health. In addition, it will allow congruency and compatibility of information between the different sources of finances, the health sector's administrative levels, as well as private and public providers. The MOH in collaboration with the technical assistance of PHR initiated the implementation phase of this process for the public sector in April 2000 (Else, 2000). At the same time, this initiative has begun to address the second point by training human resources for accounting and financing capacities on all three MOH levels. Once these two points have been successfully implemented, they will provide the basis for improved coherence in documenting and reporting financial transactions between sources, financing agents, and uses within the health sector. Finally, the availability of more reliable information will allow the MOH to integrate this additional data in its decision-making process, specifically when related to planning and forecasting purposes, or for future NHA exercises.

7.2 Sustainability and Affordability of Health Care

NHA findings confirmed key issues that have been raised in other documents, such as the MOH Public Expenditure Review and the MOH/HERA study, specifically, the concern about the unsustainable role of donor support in Rwanda's health sector. With half of the Rwandan health sector financed by donors, Rwanda has a much stronger donor dependency than other Sub-Saharan countries. Under the prevailing economic conditions, Rwanda's external dependency is not sustainable. With donors indicating a reduction in their level of financial support to Rwanda there is a need for the government to develop plans to mobilize internal resources to ensure that the current health system will remain affordable to the majority of the population. Given the low per capita public contribution to health of FRw 396 in 1998, NHA analysis suggests that the GOR significantly increase its spending on health care. The increase of public expenditure should reach at least the level of private household spending of FRw 1,592 per capita per year, and target access to health care for vulnerable groups. This will require the government increasing its outlays to priority health services, expanding the successful experimentation with prepayment schemes to other parts of the country, developing health insurance schemes for those in the formal sector, and creating a well defined publicly funded safety net for vulnerable populations. NHA data collected on a regular base must monitor the implementation of this crucial policy issue and provide information for an impact comparison.

7.3 Equity Implications

The WHO 2000 report identifies the poor as the main disadvantaged group, which has in particular less choice of providers and is offered poorer quality amenities than the non-poor. Yet Rwanda NHA findings reveal a dramatic unmet need to serve this population group. In 1999, with a view to increase risk sharing, reduce the burden of out-of-pocket costs, and improve access to basic health services for the poor, the government introduced prepayment schemes that offer health coverage to the low-income rural populations in three Rwandan health districts. The effort is commendable but should be continued and enlarged. During the first year, more than 88,000 individuals enrolled in these schemes. About 8,000 poor—among them widows, orphans, and sero-positive individuals—have benefited from the financial support of the church in Butare who paid their premium for one year. Improved fairness in health care financing could become particularly effective

for the Rwandan government if the MOH decided to identify the needy and finance premiums for those who are unable to pay. Therefore, the MOH can improve equity in access to health services by financing prepayment scheme premiums of vulnerable groups such as orphans and indigent people, and by increasing its financial support to facilities where low-income patients seek care. At the same time, the MOH should identify alternative treatment and risk-sharing methods for high-cost patients who need special care in order to decrease the high amount spent on treatment abroad for 102 patients who used 13 percent of the total MOH budget in 1998.

Similarly, the fact that access to treatment of AIDS and of opportunistic infections is determined by sero-positive patients' ability to pay high user fees or their access to financial support systems, raises serious equity concerns. A more equitable distribution of public financing may contribute to better health, by reducing the risk that people who pay for health care will be impoverished and, as a result, exposed to more health problems.

NHA analysis reveals government financing is largely used to cover personnel and functioning costs at administrative levels. Public sources that finance the provision of care are mainly channeled to cover the cost of care for a limited number of patients who are sent to Europe or South Africa (FRw 3.4 million per patient) and to finance care in referral hospitals (FRw 10,222 per patient). Although through the Central Hospital of Kigali part of these public funds do reach low-income groups, the current distribution of public funds have equity implications. NHA findings show very little public funds are paid per patient to district hospitals (FRw 132), and public payments to health centers become negligible when compared to patient volume. Thus, the range of government health care financing per patient is quite large, ranging from FRw 3.4 million per patient for few to down to almost nothing for the majority of the population.

7.4 Expanding Health Insurance Coverage to the Uninsured

This NHA analysis indicates very few people have benefited from health insurance coverage in 1998. Health insurance was mainly offered through formal sector employment, targeting a very small population group of approximately 0.6 percent of the total population or 5.9 percent of the formal sector workforce. NHA also reveals that private firms pay relatively high health care costs, with FRw 5,228 per capita per year, a contribution that should be integrated in a fairly financed risk-sharing plan. In 1999, the MOH with the technical assistance of PHR developed and implemented prepayment schemes in three Rwandan rural districts. After one year, schemes counted among their members 8 percent of the overall one million population in the three districts. Prepayment members benefit from care and services offered in district health centers and to a limited extend in district hospitals. Prepayment schemes have improved access to health care for the low-income rural population and at the same time mobilized additional local resources. Prepayment scheme members contribute five times more to health care per year (FRw 580 per capita) than non-members (FRw 104 per capita) in, for example, the district of Byumba. The WHO 2000 report stresses the launch of prepayment for health care, which is neutral to household income and can result in a fairly financed system promoting health protection for everyone.

There is a need for more systematic research to better understand the impact of HIV/AIDS on households. Rwanda is one of the few countries that has developed and implemented a clearly articulated policy for dealing with the AIDS epidemic. However, given the current state of the economy, level of health expenditures, and reliance on donors for funding health costs, it is difficult to see the government being able to mobilize significant new resources to pay for expenditures on treatment for this population. Alternatively, the government should strengthen and expand its efforts

to prevent the spread of this disease, and target its finances to facilitate access to basic care for low-income groups.

The WHO report proposes protecting the sick and the poor by avoiding negative equity consequences in health financing and setting financial and regulatory incentives. Translated into the case of Rwandan prepayment schemes, public- and donor-funded AIDS programs should target low-income, sero-positive patients by financing their and their family's prepayment membership at a higher price. It is too early to institutionalize risk-adjusted capitation payment and health re-insurance in a developing country like Rwanda. Therefore, positive incentives should be set to support the health centers, which take additional financial risks by accepting sero-positive members in their prepayment pool. For example, public and international funds can be used to guarantee providers' financial risk created by sero-positive, low-income groups, as well as to pay prepayment scheme membership at a higher price to vulnerable population groups such as low-income, sero-positive patients, and as a result improve their access to care and protect them from impoverishment.

7.5 Efficiency

Improving efficiency should occur simultaneously with improving equity in access to care as described in Section 7.3. Health system performance is commonly judged according to the overall annual per capita expenditures. In Rwanda, this amount is FRw 4,019, and the comparison of its health outcome indicators with neighboring countries (e.g., Tanzania) reveals that better health should have been attained with the money invested. There is clearly room to improve both the allocative and technical efficiency of the system in order to achieve better health outcomes. In 1998, less than one percent of public resources went to finance preventive and primary health care services in health centers, with 42 percent going to support personnel cost on administrative and hospital levels, 33 percent for administrative overheads of regions and districts, and 13 percent for covering treatment abroad for 102 patients. This distribution of public resources tends to favor those with higher income as well as hospital-based care at the expense of more cost-effective services. At times even the scarce resources available for basic health services are not appropriately distributed. The majority of patients still pay for health care in the form of out-of-pocket payments, which favors access to care for those who are able to pay the fees required. As a result, consultation rates in health centers decrease, leaving some facilities overstaffed with low productivity per worker whereas other facilities suffer from staffing shortages in the face of high demand for services. Linking resource allocation to demand and health indicators and conducting a systematic assessment of how inputs are used in referral and district hospitals can contribute to improving both allocative and technical efficiency.

This chapter has provided additional insight on some of the key findings presented in Chapters 4, 5, and 6. Since the beginning of the 1999 NHA exercise in Rwanda, the MOH and the MOF have recognized the value of NHA in strategic planning. The NHA tool also has drawn the attention of the Ministry of Local Administration, which is the ministry in charge of implementing sector-wide decentralization on all levels within the Rwandan public administration. In 2000, for the first time, almost one-third of the public health budget has been decentralized and disbursed to the regional/prefecture level. The MOH, the MOF, and the Ministry of Local Administration count on future NHA exercises to evaluate delegating of health monies to regional levels, and its overall impact on allocative efficiency, equity in access to care, and finally the population’s health status.

The final chapter (8) presents recommendations for future NHA activity and analysis in Rwanda.

8. Recommendations for Next NHA Steps

8.1 NHA Rwanda Today and in the Future

Clearly, the development, implementation and evaluation process of NHA in the Rwandan (starting in January 1999 and lasting until mid-year 2000) has led to some impressive achievements. Some of these are shown in Table 45.

Stage of the NHA Process	List of Achievements
1. Development of Rwanda NHA methodology	> MOH and MOF recognized the need and value for detailed financing data on sources, sources, and flow of funds within the health sector. > The steering committee with representatives from different ministries was established and presided over by MOH Secretary General, who provided the stewardship for the first NHA exercise > A technical team with members from the MOH and MOF started the implementation process in collaboration with PHR and WHO. > All administrative and provider levels within the public sector became acquainted with theoretical concept of NHA.
2. Implementation of NHA data collection process	> NHA data collection process forced all provider and administrative levels within the private and public health sector "to dig for their accounting data." > All entities supposed to submit data to the NHA process recognized that there was a need to improve their accounting and information systems to obtain reliable consistent data. > During workshops held in collaboration with the MOF, MOH, MOD, MOJ, MOE and the Ministry of Local Administrations, public administrative and provider level recognized the value of NHA. > As a consequence, public entities started to improve the availability and validity of their accounting data and re-submit better NHA information.
3. Discussion of first NHA results	> Preliminary NHA results presented to donors, public, and private entities that participated in this exercise. > Participants from all sectors valued highly the information presented and the need to continue the NHA exercise in light of the current financial decentralization process. > Public sector entities volunteered their participation in future NHA data collection and started to improve accounting data on their level.

The discussion of first NHA results in April 2000 led to the following suggestions made by participants:

- The availability of valid accounting data in public and private sector shall be improved in preparation for future NHA exercises.
- The Ministry of Local Administration stated the need for more than 1,000 accountants to implement successfully decentralization in public administration. This requirement for trained human resources has synergies with NHA needs.
- Health resources should be redirected to improve access to facilities at the district level, such as hospitals and health centers.
- A second round of NHA should be done for the year 2000 or 2001 to keep up the enthusiasm for improved data collection and provide longitudinal analysis for the Rwandan health sectors in anticipation of major donor changes as well as implementation of decentralized health budgets and MTEF.
- Private sector providers voiced their willingness to develop and implement a routine data collection tool that would facilitate their annual data submission for NHA.
- Participants wanted to be informed about NHA findings so that they could incorporate them into their annual strategic resource planning.

As in many other countries, initially it took some time to get NHA going. However, once all partners in the health sector recognized the additional value that NHA results can bring to their strategic decision making, they repeatedly stressed the need to continue the NHA exercise and explained their willingness to collect and submit better data.

8.2 Institutionalization of NHA

The NHA 1998 exercise has been coordinated and implemented under the stewardship of the Secretary General of the MOH. The technical team consisted of representatives from the MOH Directorate of Finance, the MOF, a private accountant firm, WHO, and PHR. The small number of trained accountants available at the MOH limited the institutionalization of the technical team at the ministry and underlined the need to strengthen human resource capacities at the MOH specialized on health care financing. Thus, in order to respond to the need of the decision-making body to improve the availability of sound financial data at the MOH, a strong technical team needs to be trained to be responsible to answer decision makers requests swiftly.

The quest for a well-trained technical health care financing team becomes even more important when considering all other decisions the MOH is currently confronted with. They include:

- Definition of baselines and objectives for Medium Term Expenditure Frameworks;
- Implementation and follow-up of decentralized budgets;
- Mobilization of additional resources from local sources for health care financing;

- Coordination of donor funds financing health care; and
- Improving the efficiency in the provision of as well as equity in access to care.

All these activities require analyzed financial data that provide recommendations for decision makers to achieve the MOH overall objective.

8.3 Availability and Access to Routine Data

Once the technical team is trained, set up, and operational, it will form a core group at the MOH and ensure the future collection of valid finance and utilization data on all provider and financing levels. The team will also be in charge of routine analysis and reporting of results to the decision-making body at the central level, as well as back to the level where data have been collected.

This technical team can use NHA as a tool:

- To compile descriptive statistics of Rwanda's health economy;
- To describe the flow of funds throughout the system;
- To assist policymakers at the MOH, the MOF, and the Ministry of Local Administration in setting health care policy priorities;
- To assess the performance of the Rwandan health sectors;
- To identify areas in the Rwandan health sector, where equity in the distribution of care can be improved.

In anticipation of donors' decision to decrease funds to the Rwandan health sector, it is strongly suggested that donors support the MOH and the MOF in its efforts to continuously improve health data collection and analysis by implementing tools such as NHA. Continuous NHA reporting will support policymakers as well as donors in strategic decision making and in using the limited resources most efficiently.

Annex A: Detailed Statistical Tables

International Organizations

Table A-1. Information from International Organizations to Supplement NHA

Liste Projets Minisante	Internat	Expen FRw	Expend
	Donor	**1998**	US$ **1998**
Projet d'urgence de réhabilitation des infrastructures sanitaires	BAD/FAD	144,300,000	455,205
Services centraux du programme socio-sanitaire	FIDA	421,730,000	1,330,379
Appui Ditrict de Santé de Ruhengeri	FRANCE	118,870,000	374,984
Projet d'appui à la surveillance épidémiologique	FRANCE	30,000,000	94,637
Projet Santé Population	IDA	1,075,000,000	3,391,167
Formation et mobilisation sociale	IRLANDE	77,000,000	242,902
Projet appui Femme et Violence	ITALIE	51,410,000	162,177
Construction Centre national de transfusion sanguine	LUXEMBOURG	150,000,000	473,186
Réhabilitation de l'Hôpital de Rwamagana	LUXEMBOURG	150,000,000	473,186
Programme national de lutte contre le SIDA	OMS	60,000,000	189,274
Appui à la lutte contre le Paludisme	OMS	81,850,000	258,202
Afropoc	OMS	234,080,000	738,423
Programme alimentaire et nutritionnel (PAN)	PAM	1,057,800,000	3,336,909
Amélioration des soins de santé primaires Butare	RFA/GTZ	165,160,000	521,009
Renforcement institutionnel et appui à la planification du MINISANTE	UK	9,900,000	31,230
Standard de prise en charge au niveau des Districts de Santé	UK	10,340,000	32,618
Gestion financière de la santé	UK	50,350,000	158,833
Appui Institutionnel au MINISANTE	UK	60,000,000	189,274
Projet d'appui à la surveillance épidémiologique	UK	47,500,000	149,842
Renforcement inst. Division épidémiologie et surv. épid.	UK	26,210,000	82,681
Développement des resources humaines au Rwanda	UE	27,860,000	87,886
Carte Sanitaire du Rwanda 1	UE	59,250,000	186,909
Appui aux Régions Sanitaires Kibungo, Kigali, Umutara + LRSP	UE	77,790,000	245,394
Réhabilitation des hôpitaux de référence	UE	91,290,000	287,981
Réhabilitation des Districts de santé Kibungo, Mutara, Byumba, Gisenyi, Kigali rural	UE	975,630,000	3,077,697
Total		**FRw 5,253,320,000**	**$16,571,987**

Source: MOH, Accounting Division

Table A-2. Total Health Spending from International Organization to the MOH

International Organizations	TOTAL FRW	TOTAL US$	Percent
COOPERATION BELGE	1,478,740,643	4,664,797	11.6%
NORWEGIAN PEOPLE'S AID	1,344,676,277	4,241,881	10.5%
EU/UE	1,154,029,941	3,640,473	9.0%
PSP	1,074,999,939	3,391,167	8.4%
WFP/PAM	1,057,799,836	3,336,908	8.3%
MSF Belgique	1,020,783,746	3,220,138	8.0%
COOPERATION SUISSE	710,080,000	2,240,000	5.5%
CICR	702,871,420	2,217,260	5.5%
World Bank / FIDA / IDA	566,030,128	1,785,584	4.4%
USAID	521,148,000	1,644,000	4.1%
AFRICAN HUMANITARIAN ACTION	485,972,729	1,533,037	3.8%
UNICEF	373,557,238	1,178,414	2.9%
AMERICAN REFUGEE COMMITTEE	313,196,000	988,000	2.4%
Luxembourg Coop	299,999,924	946,372	2.3%
FNUAP	236,801,536	747,008	1.9%
PSI	223,328,719	704,507	1.7%
UK Government	204,299,843	644,479	1.6%
GTZ	165,160,000	521,009	1.3%
Coop France	148,869,857	469,621	1.2%
WHO / OMS	141,849,892	447,476	1.1%
I.R.C.	129,602,914	408,842	1.0%
IMPACT- RWANDA	96,301,747	303,791	0.8%
DED	90,098,909	284,224	0.7%
Ireland	76,999,934	242,902	0.6%
Italie	51,410,109	162,177	0.4%
TROCAIRE	38,161,411	120,383	0.3%
WORLD VISION	36,243,244	114,332	0.3%
ACTION NORD-SUD	30,576,235	96,455	0.2%
CHRISTOFFEL BLINDENMISSION	12,001,620	37,860	0.1%
WORL RELIEF INTERNATIONAL	8,684,532	27,396	0.1%
CARE RWANDA	-	0	0.0%
ZOA REFUGEE CARE	-	0	0.0%
ENFANTS REFUGIES DU MONDE	-	0	0.0%
HEALTH UNLIMITED	-	0	0.0%
Total MOH Support	**FRw 12,794,276,323**	**$ 40,360,493**	**100.0%**

Source: NHA 1998. International organizations, and MOH Accounting Division

Table A-3. Total Health Spending from International Organization to Local NGOs

International Organizations	TOTAL FRW	TOTAL US$	Percent
AFRICAN HUMANITARIAN ACTION	146,391,234	461,802	47.9%
AMERICAN REFUGEE COMMITTEE	79,250,000	250,000	25.9%
IMPACT- RWANDA	31,502,826	99,378	10.3%
UNICEF	26,434,630	83,390	8.6%
HEALTH UNLIMITED	9,796,568	30,904	3.2%
CHRISTOFFEL BLINDENMISSION	5,560,180	17,540	1.8%
ACTION NORD-SUD	4,030,972	12,716	1.3%
FNUAP	2,884,700	9,100	0.9%
Total NGO Support	**305,851,110**	**964,830**	**100.0%**

Source: NHA 1998. International organizations

Pharmaceutical Sector

Table A-4. Drug Sale of Public and Private Pharmacies in 1998 (FRw)

Drug Sales To	Public Pharmacies	% of Total Public	Private Pharmacies	% of Total Private	Total Drug Sales	Percent
Public Sector :						
MOH Central, Programs	167,128,646	3%	-	0%	167,128,646	2%
MOH Regions	9,351,162	0%	-	0%	9,351,162	0%
MOH Districts	414,077,311	8%	-	0%	414,077,311	5%
MOH District Hospitals	35,682,040	1%	69,229,556	3%	104,911,596	1%
MOH Health Centers	131,181,120	2%	8,042,947	0%	139,224,067	2%
MOH Pharmacies	-	0%	42,532,485	2%	42,532,485	1%
Public Insurance CSR	30,863,368	1%	-	0%	30,863,368	0%
Public Laboratory	1,973,080	0%	225,400	0%	2,198,480	0%
Custom Correction: Public to providers/households	4,099,871,774	77%	-	0%	4,099,871,774	
Other public (prisons)	7,378,082	0%	136,468,121	5%	143,846,203	2%
Total Public Sector	4,897,506,583	92%	256,498,509	10%	5,154,005,092	13%
Church-owned Sector :						
Church District Hospitals	17,841,020	0%	45,054,844	2%	62,895,864	1%
Church Health Centers	69,825,026	1%	129,299,260	5%	199,124,286	3%
Total Church Sector	**87,666,046**	**2%**	**174,354,104**	**7%**	**262,020,150**	**3%**
Private Sector :						
Private Hospitals	-	0%	13,399,540	1%	13,399,540	0%
Private Clinics	1,400,000	0%	8,715,020	0%	10,115,020	0%
Private Pharmacies	47,850,000	1%	414,656,316	17%	462,506,316	6%
NHA Sale to Households	19,913,122	0%	292,600,197	12%	312,513,319	4%
Custom Correction:		0%	1,303,119,527	52%	1,303,119,527	69%

Private to households	-					
Donors	284,945,052	5%	42,493,925	2%	327,438,977	4%
Total Private Sector	**354,108,174**	**7%**	**2,074,984,525**	**83%**	**2,429,092,699**	**83%**
Total Drug Sales FRW	**5,339,280,803**	**100%**	**2,505,837,138**	**100%**	**7,845,117,941**	**100%**
Percent	**68%**		**32%**		**100%**	
Total Drug Sales US$	**16,843,157**		**7,904,849**		**24,748,006**	

Source: Adjusted NHA 1998 data

District Hospitals

Table A-5. Hospital Revenue from Private Households and Contracts in 1998

District Hospitals	Number of hospitals	Total patient revenue	Total contract revenue (employers)	Other revenue (capital and investment)	Total revenue from private activities	Ave private revenue per hospital
Public Hospitals	19	290,216,853	0	2,186,298	292,403,151	15,389,640
Church Hospitals	10	197,106,933	513,725	1,217,143	198,837,801	19,883,780
Total DH	**29**	**487,323,786**	**513,725**	**3,403,441**	**491,240,952**	**16,939,343**

Source: Hospital NHA

Table A-6. District Hospital (DH) Revenue from Public Funds in 1998

District Hospitals	MOH funds	Funds from district	Other public funds (other Ministries)	Total public funds	Average public funds per hospital
Public Hospitals	175,027,120	18,651,122	1,876,628	195,554,870	10,292,362
Church Hospitals	37,576,298	4,336,569	15,526,236	57,439,103	5,743,910
Total DH	**212,603,418**	**22,987,691**	**17,402,864**	**252,993,973**	**8,723,930**

Source: Hospital NHA

Table A-7. Hospital Revenue from Foreign Assistance in 1998

District Hospitals	Total donor funds FRw	Ave donor funds per hospital FRw
Public Hospitals	1,849,407,921	97,337,259
Church Hospitals	899,792,137	89,979,214
Total DH	**2,749,200,058**	**94,800,002**

Source: Hospital NHA for public hospitals and donor NHA for church-owned hospitals

Annex B: Bibliography

Berman, Peter. 1997. "National Health Accounts in Developing Countries: *Appropriate Methods and Recent Applications*." Health Economics, Vol. 6: pp. 11-30.

Bloom, David E. 1999. "Economic Perspectives on the Global AIDS Epidemic." *AIDS Patient Care and STDs*. Volume 13, Number 4. Mary Ann Liebert, Inc.

Bollinger, Lori and John Stover. 1999. *The Economic Impact of AIDS*. The Futures Group International, Glastonbury, CT.

Cassels, A. and Janovsky, K. 1998. "Better health in developing countries: *are sector-wide approaches the way of the future?*" *Lancet* 352: 1777-1779.

Else, Brad. 2000. *Improving Financial Management in the Rwandan Health Sector.* PHR Trip Report. April 21-May 13, 2000.

Leighton, Charlotte. 1996. "Strategies for Achieving Health Financing Reform in Africa." *World Development* 24(9): 1511-1525.

Nandakumar, A.K. *National Health Accounts. PHR Trip Report*. April 23-May 2, 1999. Partnerships for Health Reform. Bethesda, MD.

Nandakumar A.K. et al. 2000. *Use of and Expenditures on Outpatient Health Care by a Group of HIV-positive Individuals in Rwanda*. Special Initiative Report 28. Partnerships for Health Reform. Bethesda, MD.

Republic of Rwanda, Ministry of Health. Health and Population Project. 1999a. "Study on the Financing of the Health System." HERA-ULB.

Republic of Rwanda, Ministry of Health. 1999b. *Rapport Annuel 1998*. Kigali.

Republic of Rwanda. Ministry of Health. 1999c. *Public Expenditure Review Health Sector 1998*. Kigali.

Republic of Rwanda, Ministry of Finance and Economic Planning, Department of Statistics. 1999d. "Rwanda Development Indicators No. 2, July 1999."

Republic of Rwanda. Ministry of Health. Programme National de Lutte contre le SIDA. 1998a. "The Rwanda National HIV/STD/AIDS Strategic Plan Framework for the MTPIII Period 1998 to 2001." With support from UNAIDS.

Republic of Rwanda, Ministry of Finance and Economic Planning, Department of Statistics. Office National de la Population. 1998b. "Enquête Socio-Démographique 1996."

Republic of Rwanda, Ministry of Health. February 1995. *National Health Policy*. In conjunction with the World Health Organization.

Republic of Rwanda, Office National de la Population. 1994. “Enquête Démographique et de Santé Rwanda 1992.” Columbia, MD: Macro International Inc.

Schneider, Pia et al. 2000. *Developing and Implementing Prepayment Schemes in Rwanda*. Technical Report No. 45. Bethesda, MD: Partnerships for Health Reform, Abt Associates Inc.

Shepard, Donald S. et al. 1992. “Household participation in financing of health care at government health centers in Rwanda.” In: Mills, Anne, and Lucy Gilson. 1992. *Health Economics for Developing Countries*. London School of Hygiene and Tropical Medicine.

Stover, John and Lori Bollinger. 1999. *The Economic Impact of AIDS in Rwanda*. Glastonbury, CT: The Policy Project. The Futures Group International.

UNAIDS. 2000. “Report on the global HIV/AIDS epidemic. June 2000.” Geneva.

UNAIDS. 1999. “Level and flow of national and international resources for the response to HIV/AIDS, 1996-1997.” Geneva.

UNAIDS. 1999. “Funding priorities for the HIV/AIDS crisis in Thailand. UNAIDS Best Practice Collection.” Geneva.

UNAIDS/WHO. 1998. “Rwanda Epidemiological Fact Sheet on HIV/AIDS and Sexually Transmitted Diseases.” Geneva.

The World Bank. *World Development Indicators 2000*. http://www.worldbank.org/data/wdi2000/index.htm

The World Bank, 1999. *Rwanda at a Glance.* Washington, DC:

The World Bank. 1998. *Rwanda Poverty Note. Rebuilding an Equitable Society: Poverty and Poverty Reduction after the Genocide.* Macroeconomics 3. Africa Region. Washington, DC.

The World Bank. 1994. *Better Health in Africa: Experience and Lessons Learned*. Washington, DC.

The World Bank. 1993. *World Development Report 1993. Investing in Health. World Development Indicators.* Washington, DC.

The World Bank. 1992. *Financing Health Services in Developing Countries: An Agenda for Reform.* Washington, DC.

World Health Organization. 2000. *The World Health Report 2000. Health Systems - Improving Performance.* Geneva.

World Health Organization. 1999. *The World Health Report 1999: Making a Difference.* Geneva.

World Health Organization. 1993. *Macroeconomic Environment and Health*. With case studies for countries in greatest need. Geneva